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BRITISH BIRDS

WITH WHICH WAS INCORPORATED IN JANUARY, 1917, "THE ZOOLOGIST."

AN ILLUSTRATED MAGAZINE DEVOTED CHIEFLY TO THE BIRDS ON THE BRITISH LIST

EDITED BY

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BRITISH BIRDS

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AN ILLUSTRATED MAGAZINE DEVOTED CHIEFLY TO THE BIRDS ON THE BRITISH LIST

JUNE 1, 1929.

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Attitudes of Yellowshank (Figs. 1–7) and Greater Yellowshank (Figs. 8 and 9). For description, see text.

(*From sketches by* W. Rowan.)

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NOTES ON ALBERTA WADERS INCLUDED ON THE BRITISH LIST.

BY

WILLIAM ROWAN, M.Sc., F.Z.S., M.A., M.B.O.U.

PART VII.*

(Plates 1 to 4.)

Tringa flavipes, YELLOWSHANK.
(A.O.U. Check-list, *Totanus flavipes*, YELLOW-LEGS.)

THE Yellowshank is one of the most abundant and noisy of our shore-birds. It is also a common breeder in suitable localities. At the lake it is comparatively rare in the spring but the scarcity is apparent rather than real, for it seems to have such a decided preference for the small sloughs and puddles at this season, that it but seldom visits the larger lakes. As waders go, it is fairly early in its dates, being plentiful normally by the first week of May. (Henderson, *Oologists' Record*, March, 1927, has recorded a full set of eggs by May 15th.) Our earliest date is April 25th, beaten only by the Killdeer among shore-birds. Unlike this plover, however, the Yellowshank does not stay correspondingly late in the fall. The main southward migration occurs from late July to mid-August when, incidentally, many adults are already well on into winter plumage. The birds no longer avoid the larger lakes and are then present on our mudflats in many hundreds. After the beginning of September it is but rarely noted, although we have odd records till the end of the month. The later birds are all young.

The most characteristic things about the Yellowshank are its speckled plumage, white rump and practically white tail, long yellow legs, the habit of nodding, and its notes. The bird gives one the impression of being rather long in the body, no doubt accounted for by the length of wing which is rather exceptional for the size of the bird. Pictures of this species usually depict the individual as being long-bodied and long-necked, but the latter is hardly typical. If a flock is watched quietly and unobtrusively, the majority of individuals are noticed to have their necks well tucked into the body (Plate 1, fig. 3). It seems to be only in moments of excitement, admittedly rather frequent, that the neck is extended (Plate 1, fig. 1). Nodding is one of the distinctive features of both species of Yellowshanks. In walking the head is jerked forwards at each step. In excitement or curiosity it

*Continued from Vol. XX., p 222.

FIG. 1.—Immature Yellowshank.
(*Photographed by* Alex. G. Lawrence.)

Fig. 2.—Feeding Yellowshanks.

; moved straight upwards by the momentary stretching of he neck. This may be repeated many times and on occasion ecomes quite vehement.

A flock of Yellowshank can generally be identified at a reat distance by the loose association of its members (Fig. 2). hey never crowd and are more generally widely scattered. hey show considerable individuality if disturbed, the flock ften splitting and travelling in different directions, or requently some may stay whilst others depart. On the vhole the species is distinctly confiding and it is often a imple matter to walk within a few feet of them.

These birds have some rather characteristic ways. The abit of dipping the bill into water at intervals whilst preening have never observed with any other species and it is very onstant with the Yellowshank. Another habit, apparently eculiar to them, is that of jumping into the air when bathing nd dashing themselves into the water from a height of everal inches and repeating the performance half a dozen imes in rapid succession. The birds are rarely seen on land, ut may feed in water barely deep enough to cover their feet o depths that compel occasional swimming. The bill is enerally thrust in at an angle of twenty or thirty degrees and he movements are rapid, a trait that separates them contantly from the one other species that is often confounded vith them—the Stilt Sandpiper (*Micropalama himantopus*). his Sandpiper is a mud prober and the bill, longer than that f the Yellowshank, is invariably thrust in perpendicularly. t gives the bird an entirely different carriage and profile, eadily noticeable at a long distance. If a "yellowshank" is een thrusting its bill in perpendicularly it is not a shank but Stilt Sandpiper. The latter is actually considerably the maller of the two, but, as with the Baird and Semi-palmated Sandpipers, the difference in life is not nearly as evident as it s in made-up skins. Details of plumage are entirely different, ut, as is so frequently the case, these are only of value if one appens to be at close range and enjoying favourable light onditions. A characteristic profile is far more valuable in ny lighting and at ten times the distance. The rump attern is incidentally diagnostic, the white being horse-shoe haped in the Sandpiper and running straight across in the Shank.

The Yellowshank has frequently been noted to alight in eep water and to swim easily and without concern as though t were a perfectly normal proceeding. T. E. Randall tells me hat he has seen a large flock settle in deep water in concert.

Small flocks of Yellowlegs alighting on the edge of the lake have often been noticed tumbling down at great speed and zigzagging to earth after the manner of many ducks, creating a great noise with their wings in so doing. They settle in the usual manner, their long legs dropping and finding bottom, the wings extended for a moment and then gracefully and leisurely folded. This boisterous method of coming to ground is possibly a form of play, forgotten as soon as the birds are settled.

Apparently the Yellowshank may travel considerable distances at a stage, for the species has a good many times been noted sleeping so soundly on the shore that it has been nearly possible to pick up the individuals by hand, and killing them with sticks would have been perfectly feasible. They are then so tired that they can barely raise the energy to move a few feet out of the way.

The regurgitation of pellets is another of the Yellowshank's characteristics, although we have only noted this on the breeding-grounds. Such a pellet, ejected from the top of a stump and caught in its descent by Mr. R. Rauch, who kindly presented it to me, turned out to consist entirely of crustacean remains. Analysis was made for me by the United States Biological Survey.

The calls of this bird are many and varied. They have been described at great length by Nichols (Limicoline voices, *Auk*, 1920). All the typical notes are characteristic and can be mistaken on the American side of the Atlantic for no other species save those of the Greater Yellowshank, and even then the difference in richness and volume is so marked that confusion is seldom possible. In fact, their notes provide one of the surest means of telling the two species apart.

The most constant and typical note of the Lesser Yellowshank is a single

"tŭ," or often double, "tŭ tŭpe."

In quality and volume it is so like the call of the Redshank that I should imagine the note of a stray Yellowshank on the British coasts would be taken nine times out of ten for an imperfect rendering of the Redshank's. But the characteristic dropping of a semitone in the second (and third) syllable of the Redshank's full call never occurs in the Yellowshank's, so that the Redshank's call in its typical form need never be followed up in the hopes of finding a Yellowshank. If the first note is followed by one or more at the same pitch, the

ossibility of a Yellowshank should be forthwith investigated. But the bird seldom utters more than two syllables—frequently nly one—and three are rare. The Greater, on the other and, more usually repeats two or three times, and with lightly lowering pitch, but the call is altogether stronger and ore ringing than either that of the Lesser or the Redshank. The call of the Greenshank I have heard but once, and do not ecall it sufficiently clearly to attempt comparison.

◡◝◡–◡	◡	◡–◡	◡◝◡◝◡
"tu-hu-hu"	"tu" or	"tu-tupe"	"tu-tu-tu"
Redshank	Yellowshank		Greater Yellowshank.

A rather frequent call, and apparently an indication of ickering, is a rapidly repeated

◡ ◡ ◡ ◡ ◡ ◡ ◡ ◡
"tit – tit – tit – tit – tit – tit – tit – tit,"

ising and speeding up towards the end.

On the breeding-grounds, as the birds fly around or sit on ree-stumps, the single "tu" is monotonously repeated time after time at intervals of a few seconds, sometimes for ten inutes without cessation. When the bird is more closely pproached it changes its character entirely, being rapidly epeated four or five times as a rule, then a brief interval, hen again four or five repetitions, and so on, thus

◡ ◡ ◡ ◡ ◡ ◡ ◡ ◡ ◡ ◡ ◡ ◡ ◡ ◡ ◡
"tu-tu-tu-tu-tu tu-tu-tu-tu tu-tu-tu-tu-tu"

his is generally accompanied by particularly hectic nodding, eck extended.

The love song and flight are characteristic of the breeding-rounds, but the song—without the typical flight—is quite ften heard, briefly and casually, during the fall migration. The song consists of a rather musical

◡◝◡/‾◝◡◝◡/‾◝◡◝◡/‾◝◡◝◡/‾
"pill-e-wee-pill-e-wee-pill-e-wee-pill-e-wee," etc.

n the breeding-grounds carried on for minutes together vithout a break. Usually the individual is in flight, itself haracteristic. Like that of many other waders it is undulat-ng, the bird plying its wings rapidly to gain impetus and lying upwards, then gliding first up, then level and then down, rapid wing-beats again beginning soon after the initial drop,

to produce another rise and another glide, and so on. It may be graphically indicated thus :

dots representing active flight, the continuous line gliding. The song (apparently the "yodel" of Nichols, *loc. cit.*) continues without interruption throughout. At the top of the glide the tail is fanned, the legs are spread apart and the neck is craned upwards, the wings being held downwards (Plate 1, figs. 5, 6 and 7). At the end of the flight the individual frequently settles on a high stump and proceeds with the solo there. The neck is then held extended, dropped to slightly below the horizontal, and swung from side to side for as long as the song continues (Plate 1, fig. 2). This attitude is so characteristic that a singing individual on a stump can be recognized as far away as it can be seen. But whether this is of any practical value as a guide to one searching for the nest is questionable, for there seems no good reason to believe that a stump selected for singing bears any definite relationship to the site of the nest.

At times an individual will cease singing in the middle of its flight and will then continue switchbacking for short distances in silence. But the neck-craning, fanning of the tail and spreading of the legs apparently cease with the song.

Both flight and song appear to be common to both sexes. Both before and after coition on a stub, both participants have been noted doing the display flight. Henderson (*loc. cit.*) has recorded attempted coition in mid-air by a pair indulging simultaneously in the flight-song.

There seems to be another, but much rarer, display flight. It has only been observed two or three times, once immediately following an unsuccessful attempt at union and by the male bird only. The flight is erratic, very rapid, apparently of short duration and the song excitable and irregular and varying greatly from the standard performance.

Finally, a few comments on the behaviour of the Yellowshank on its breeding-grounds. Henderson (*loc. cit.*) and Street ("On the nesting-grounds of the Solitary Sandpiper and Lesser Yellowlegs," *Auk*, 1923) have both already published interesting accounts of the breeding of this species in Alberta. The chosen sites are on the whole extraordinarily uniform and characteristic and I am aware of only a single nest found elsewhere within the Province—on the edge of a muskeg slough. The general type of country chosen is

actically invariable, fairly open woodland interspersed th lakes, small or large, and preferably supplied with dead-lls produced either by gale or fire (Fig. 3). Woodland burnt er a few years previously is the Yellowshank breeding-ound *par excellence*. The presence of trees appears to be a ucial requirement, while dead stumps add much to the popu-rity of the ground, affording, as they do, the most favoured

FIG. 3.—Typical nesting grounds of Yellowshank in Alberta.
(*Photographed by* W. Rowan.)

pe of perch. A large percentage of nests, moreover, is to be ound in juxtaposition to a small log or large branch (Fig. 4).

While the Yellowshank can hardly be called a colonial ester it is distinctly sociable, and a large number of pairs sually breed in any given patch of burnt country. Nests ay be found a mile from water, and as long as there are kes or sloughs in the general neighbourhood—probably ssential for feeding—the ground proves acceptable, although self entirely dry and, more often than not, high. The pecies is comparatively scarce in the muskeg country proper, he real home of the Greater and the Solitary Sandpiper, and s there confined to the jackpine ridges—high, dry and iberally sprinkled with dead-falls. The exception referred

to above, was, however, found in this type of country.

The lakes and sloughs of the breeding-territory are the feeding-grounds. Here, along their edges, numbers of birds may be seen at any time, but it is a constantly changing population, birds arriving and departing incessantly. The going individuals speedily guide one to the breeding-grounds, the line of flight being, as a rule, direct. Here birds may be

FIG. 4.—Nest and eggs of Yellowshank.
(*Photographed by* W. Rowan.)

seen in the air enjoying the flight-song or sitting on the stumps preening and periodically "tu-tuing." They show annoyance rather than fear upon one's intrusion, for there is no apparent exodus. The speediest way of finding the nest is to watch a bird that seems to be more or less attached to a given perch and hide. If it happens to be a sitting individual one's luck is in, and probably within a very short time the bird will become less noisy, drop unostentatiously to a lower stump, "tu tu" gently for a while, and then suddenly descend to the ground. If one gives it a few minutes to settle down and then

Greater and Lesser Yellowshanks. Both juveniles, August, nat. size. (*From a pencil drawing by* W. Rowan in the possession of Colonel John E. Thayer.)

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ks over to where it disappeared, the chances are that it be "jumped" from eggs within forty or fifty yards of the t it settled on. The final distance appears generally to be ersed on foot, the bird seldom, if ever, flying direct to the , conduct that seems to be characteristic of waders erally. And so one gets the quite delusive impression t there is nothing simpler in the world than to find eggs he Yellowshank. The first I ever saw *in situ* were found ctly like this, the entire proceeding occupying less than an r. One may try the same thing on a dozen further birds l be no nearer locating the eggs than when one began. trouble is, no doubt, that the majority of birds one selects probably only mates of others already snugly incubating ewhere and that themselves have no immediate intention eturning to the nest. Yet they will be perched there as ugh the safety of the entire universe depended on the ount of noise they made, fanning the flame of the watcher's imism for perhaps an hour or two and then suddenly ttering his dreams by making a bee-line for a distant igh. For a bird on a stump, whether within or without own territory, seems to show the same reactions to human uders, and it is only by constant visits to the grounds that can certainly connect individuals with specific areas. A il is then worth while, but it may be a very long one, for bird on the stump may not be due to relieve its mate for atter of hours and it may go off for a couple of feeds in the antime. Until it finally goes to earth it gives no direct e as to the whereabouts of its nest.

Then there is the other type of Shank that proves shy and uses to return at all. This kind is hopeless and the most sperating of all. Possibly both birds of a pair do not ays share household duties.

An idea of how close the birds may sit can be gained from following episode. One of our party had located the ereabouts of a nest, but could not actually find it. From behaviour of the birds it was quite certain that there were gs somewhere in the immediate vicinity. He guessed at nearest spot and fired off half a dozen rounds of a 12-bore ot-gun, the idea arising from the accidental discovery of a vious nest, the owner of which had been flushed on the aking of a branch whilst the finder was climbing a tree a yards off. Each shot was fired from a slightly different ot and the area well covered. The bird did not stir. A few nutes later she rose from the hunter's feet as he all but

stepped on her! He was within twenty-five yards of the spot from which the nearest shot had been fired.

There seems little doubt that both sexes incubate, although, as far as I know, no birds have ever been collected to verify the belief. The most convincing bit of circumstantial evidence within my experience is an incident that befell R. C. Harlow on a trip into the Belvedere country that I was privileged to enjoy with him. He had been watching a Yellowlegs on a stump for two-and-a-half hours before it finally went to earth. After a few minutes he followed it. A Yellowshank, quite unalarmed, almost flew into his face as he pushed his way through the scrub. However, knowing he was within a few yards of the nest, he proceeded, and a moment later flushed another bird off eggs which were thoroughly warm. There seems but little doubt that the bird on the stump had merely gone down to change places with the one on the nest and this was the one that almost hit Harlow as it flew out after being relieved.

The Yellowshank habitually makes a number of superfluous scrapes within a few feet of the one ultimately used. Whether there is any courting ceremony connected with these, as in the case of the Peewit and some other shore-birds, appears to be unknown, but a pair of birds that I was watching for three or four days before the first egg was laid were frequently on the ground together. Unfortunately, they were then out of sight on account of intervening scrub. The mere fact, however, is suggestive. Blades of grass placed across the additional scrapes remained undisturbed throughout the day on which the first egg was laid, which suggests that they had then ceased to be of interest. The actual nest is generally lined with dead leaves and *débris*. Four eggs are the rule and extraordinarily beautiful they are. One never ceases to get an exhilarating thrill on gazing at eggs of this bird, some so astoundingly easy to find, others so incredibly difficult, and many, alas, quite impossible.

The following account of the downy young is from a skin kindly loaned me by Major Allan Brooks, collected at Atlin, B.C., on June 17th, 1924 (see Plate 3).

Soft parts: Iris, sepia. Bill: ash-grey, terminal third, black. Feet: dusky ochre, bright ochre on back of tarsus and soles. Claws, blackish. Culmen, 19.5 mm. Tarsus, 35.0 mm.

Down on forehead buff-grey, tipped black; a black median line from base of upper mandible to centre of crown, becoming confluent behind with another from above centre of eye encircling crown. From upper mandible above eye and

Downy young of Yellowshank (*Tringa flavipes*) probably 8 or 9 days old. From Atlin, B.C. Collection of Major Allan Brooks. $\frac{2}{3}$rds life size.

From a pencil drawing by W. Rowan in the possession of Clifford Borrer, Esq.)

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nape, a buff-grey band interrupted above eye by broken line ; a black line from sides of upper mandible through nd down sides of nape ; centre of nape black ; running to base of neck an irregular broad black band ; from le of back almost to uropygial tuft a black median band ; line down sides of back ; black line down length of radial carpal portion of wing ; irregular black tufts, thigh ; gial tuft buff, with blackish streak each side of central remaining upper-parts buff-grey ; under-parts greyish- , suffused with buffish on breast, vent and sides, and utely tipped with blackish on chin and throat.

uthers are appearing in quill over most of the body, most advanced on wings, flanks, breast, hinder-parts roat, and back of neck and shoulders.

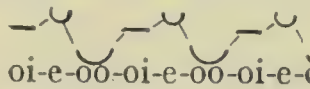
e skin is strikingly like that of a nestling Redshank.

Tringa melanoleuca, GREATER YELLOWSHANK (A.O.U. Check-list, *Totanus melanoleucus*, GREATER YELLOW-LEGS).

bird is something of a mystery in many respects. At ake it is one of the rarest of waders. We have but a single g record of it and barely a dozen in the late summer and On some of the other larger lakes it appears to be r more plentiful, but is nowhere, as far as I can gather, dant. Yet it is more or less of a common breeder in all uitable treed muskegs of central Alberta, south to the ies. F. L. Farley, who has been familiar with prairie for over thirty years, considers it a great event when he unters this species. Harrold, who has had intensive rience of shore-birds for many years in the three prairie inces, also looks upon it as a rarity. In parts of British nbia it is common—though always scarcer than its lesser ve—and it is possible that it gets here to breed via the ntains. But information on the movements of the bird, ar as the prairies are concerned, is deplorably scarce. bly, like the Lesser, it also prefers the little sloughs while ing the plains, and so may come and go largely unob- d. But I hardly think this can be the explanation for one would surely have ascertained such a fact ere this. eoretically the species should be easily distinguishable the Lesser, but considerable familiarity with both is ired before this becomes the case. In the hand, of course, cannot be mistaken, but in life the larger Lessers look as big in the body as many Greaters, and the much longer stouter bill of the latter (Plate 2) has to be seen squarely in le before it can be fully evaluated. Neither body-size nor

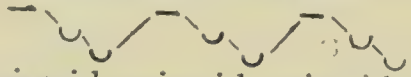
bill are good practical features except under favourable circumstances. In my novice days I several times collected Lessers after careful survey through the glasses in the expectation of picking up Greaters. The best feature when both species occur together in a flock is the height at which the Greaters are standing. Their legs are much the longer and it does not matter if the bird is looking at or away from you so that you cannot gauge the size of bill, or has its feathers compactly pulled in, while the smaller birds are fluffed out and look just as large, the Greaters will always be standing sufficiently higher to be picked out for certain. Once such a mixed flock gets a-wing identification is easy, for the wing-spread of the Greater exceeds that of the Lesser so conspicuously that no mistakes can be made. The presence of the larger bird can always be detected by the call-notes, which are not only louder than those of the smaller, but much richer and fuller, although there are notes, like the short "quip," that can be mistaken.

The commonest notes of the Greater Yellowshank have already been referred to in the preceding section. They are, on the whole, very like those of the Lesser. On the breeding-grounds, the alarm-note is different either from the call-note or the corresponding cry of the Lesser. It sounds like "yup" and is repeated *ad nauseam*. The ordinary call, "tu tu tu," is frequently heard in addition. There appear to be two distinct songs, both uttered in flight and occasionally as the bird sits on a stump. Eggs were hatching within a few days of our arrival on the breeding-grounds, and the display flight was then not very frequent. The switchback flight of the Lesser was never noted although I am told that it exists. Both songs are loud and rolling but we never heard them last for any length of time. The one may be rendered thus:



"oi-e-oo-oi-e-oo-oi-e-oo," etc.

the other



"wigg-i-ly-wigg-i-ly-wigg-i-ly," etc.

The Greater Yellowshank is on the whole more electric in its movements than the Lesser and seems to nod more vigorously. Perhaps it is only a nod on a larger scale, but there is a difference. The few birds we have seen on migration have all been relatively approachable and tame. They are less noisy than the Lesser and seldom appear to call when on the ground. The "tu tu" note is frequently repeated three or four times, descending slightly in pitch, though one indi-

ıal we had around us most of the day produced no more ı a single note at any time. Flight is strong and direct. ements on the ground are rapid and jerky. The species r probes and is frequently to be seen running through water and skimming the surface with its bill. The side ide swing of the Avocet is not in vogue, the bill being ned along steadily forwards (Plate 1, fig. 8). As already ed, we do not get the species in any numbers, but such as e have been in the duck season have always shown great rest in our duck-decoys and, if the water is shallow enough permit it, will settle right among them.

s mysterious as its passage across the prairies is the ing of this bird. Its breeding distribution and favoured nts are perfectly well known, but the ultimate nesting- in the west remains a complete enigma. All attempts liscover it have so far been completely abortive. Dyson's ount ("Some Field Notes on the Nesting of the Yellow- nk" (*T. melanoleuca*), *Bull. Brit. Ool. Ass.*, May, 1925) is excellent description of what is becoming quite a common erience—serious and painstaking effort to find eggs ninating merely in the accumulation of observations, the ngthening of pious faith in the next attempt or, if one is icularly fortunate, in the finding of downy young any- ere except where they were hatched, and hence not tributing in the least towards future success.

The main breeding-grounds of this species in Alberta are oubtedly the muskegs, the country frequented also by Dowitcher. Here the Solitary Sandpiper abounds and ys the company of the Bonaparte Gull, Waxwing *mbycilla garrulus*), Ring-necked Duck (*Nyroca collaris*), y-crowned Kinglet (*Regulus calendula*) and other rarities. these, however, have weakened before the patient onslaught the collector, but not so the Greater Yellowshank. Its e remains impregnable, its secret inviolate.

n hunting for eggs of this species, previously published ounts are of but scanty assistance. Some of the few nests r taken in the east have been in marshy ground, others on ı, dry ridges. Dyson evidently believes that the sitting l leaves the eggs on the alarm of its mate. My own erience with the species has led me to the diametrically osite view, that the incubating bird probably sits closer n even the Lesser or the Dowitcher. If this were not case I do not believe that the many efforts made in erta in recent years to discover the nest of the Greater lowshank would have been so completely hopeless.

Numerous observers have attempted to watch the birds down, but without success. They never go down. The conspicuous birds are the non-sitters, and one never sees the others.

As to our experiences, there is little to relate. The species appears to be an earlier breeder than the Lesser, even as it is an earlier migrant in the spring (and probably later in the fall). I secured a downy chick (Plate 4) a day or two old on May 31st, 1926, and within a week, judging from the change in the behaviour of the adults, numerous families must have been out. Assuming the period of incubation to be about twenty-four days, as with the Redshank, laying must have begun early in May and been general by the second

FIG. 5.—Breeding territory of Greater Yellowshank. The lake-like sheet in middle distance is grassy muskeg. Jack-pine ridge in background. (*Photographed by* W. Rowan.)

week. A full set of eggs of the Lesser Yellowshank by May 15th, on the other hand, is quite exceptional.

When we arrived on the grounds at the close of the month —we had been unavoidably delayed by the procrastinations of our Indian guide for more than a week—we found the Greater Yellowlegs evenly distributed throughout the territory. This consisted of muskegs with small lakes and sloughs scattered evenly throughout them. Practically every stretch of muskeg, sparsely sprinkled with tamaracs and spruces (Fig. 5), had its pair, or so we assumed, for we rarely saw but more than a single individual at a time. He

Downy young of Greater Yellowshank (*Tringa melanoleuca*) probably two days old. From Klondike City, Alberta. $\frac{2}{3}$rds life size.

(*From a pencil drawing by* W. Rowan in the possession of H. F. Witherby, Esq.)

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she) would be sitting quite regularly on some tall, dead e and there would commence the monotonous alarm. netimes the birds would show real excitement and fly ınd us, but as a rule they were content to remain where ey were and vociferate. A number of these individuals re watched from complete seclusion and in a comparatively ort time would evidently be oblivious of one's presence. ey would sit and preen or periodically call or fly off to chivy crow or other intruder, immediately to return, but the ling was stereotyped—they would streak for the horizon disappear somewhere in the clouds. My longest watch ted for three hours and ten minutes. I must have had bird in sight through the glasses for at least two miles er it left, but it was still going strong when it was finally t to view, a dwindling speck somewhere in the vasty blue. it was merely going off to feed it would obviously be policy prolong the watch and await developments upon its urn, but mosquitos set a limit to one's patience, and in y case it is possible that in this species only one bird of a ir incubates. Many of these muskeg lakes are certainly good whatever to a Shank as feeding-grounds, for they ve no muddy shores, the floating vegetation overlapping e margins far beyond the solid limits underneath. The rds might therefore well have to travel a few miles for food d it would matter nothing to them. But there is no doubt at they were breeding on those very spots, for before we t two birds would be mostly in evidence—very much so fact—in place of the former one, shrieking and swooping us and derisively proclaiming to us and the world at large at the Yellowshank population had been successfully creased in spite of us.

Plate 4 is drawn from the skin of a downy Greater Yellow- s procured in the Alberta muskegs (Klondike City) and m sketches made from the living youngster on May 31st, 26. The bill and eyes of this chick were black and the legs d feet yellow-green. Mr. Witherby, in whose possession the n now is, describes the nestling as follows: In general the rk markings are very similar to those of the downy Red- ınk, but the black patch at the back of the crown is more id than in the Redshank, and the black central lines down the ck are wider, while the uropygium is blacker. The ground- lour of the upper-parts is markedly different from that in the dshank, being greyish-white, in place of rufous or deep buff. e under-parts are greyish-white, tipped with dusky on the e-neck, while in the Redshank they are considerably buffer.

NOTES

SOME BIRDS OBSERVED ON THE ISLANDS OF SCILLY.

We visited the Isles of Scilly from March 8th to 19th, 1929, and were fortunate in seeing a large number of birds, some of which are worth noting for various reasons detailed below. During the whole period moderate to strong east winds prevailed and the weather was cold till March 18th. No Kittiwake was seen at sea or near the isles and no Puffins had arrived up to March 19th. The Scillonians say they arrive on March 28th.

Chaffinch (*Fringilla c. cœlebs*).—Numerous in small parties. Not one heard in song. Although Clark and Rodd mention this as an autumn to spring visitor and passage-migrant (*Zoologist*, 1906, p. 250) Mr. Wallis saw only one (*Brit. Birds*, Vol. XVIII., p. 73.)

Brambling (*Fringilla montifringilla*).—A pair seen on March 12th and another on the 18th, while one or two birds were seen with Chaffinches on the 17th. This species is mentioned by Clark and Rodd as an occasional visitor in autumn and winter.

House-Sparrow (*Passer d. domesticus*).—Numerous in villages. Large flocks, apparently migrating, were seen on March 17th. They were chattering in the woods at Tresco, away from any house, and were apparently on the move.

Grey Wagtail (*Motacilla c. cinerea*).—Three or four seen after March 15th. Clark and Rodd appear to have known of its occurrence in spring in only one year.

Pied Flycatcher (*Muscicapa h. hypoleuca*).—A pair seen March 12th on St. Agnes—also a pair seen by Dr. Thomas on Samson on the 14th. Only one spring occurrence is mentioned by Clark and Rodd. The earliest recorded date for the British Islands as given in the *Practical Handbook* is March 26th.

Ring-Ouzel (*Turdus t. torquatus*).—Two pairs seen at close quarters by Dr. Percy Thomas on March 15th. Clark and Rodd considered it probably a regular spring migrant.

Whinchat (*Saxicola r. rubetra*).—One male on Tresco on March 17th. No spring records of this species are mentioned by Clark and Rodd.

Black Redstart (*Phœnicurus o. gibraltariensis*).—First 'd seen by Dr. P. Thomas on March 10th on Bryher. One ıle observed on the 16th feeding a yard or two from the ndow of Tregarthen's Hotel, St. Mary's, very tame. A all party of five or six was seen by Dr. Thomas on the 15th : St. Mary's. On the 17th one pair was seen on St. Mary's d on the 18th two pairs on Annet. Subsequently several en on St. Mary's and also on St. Agnes.

Hoopoe (*Upupa e. epops*).—A pair on Tresco seen by a ident on March 13th. It usually does not appear until ril.

Buzzard (*Buteo b. buteo*).—One seen by Dr. Thomas on ırch 10th. Clark and Rodd mention it as a passing migrant autumn.

Eider (*Somateria m. mollissima*).—Two ducks and a drake March 16th. There seem few records of this species for illy.

Manx Shearwater (*Puffinus p. puffinus*).—Many on the ı. They were already grunting in their holes on Annet on ırch 18th. Hundreds were to be seen dead. (*Cf.* H. M. allis, Vol. XVII., p. 58; Vol. XVIII., p. 74.)

Black-throated Diver (*Colymbus a. arcticus*).—One seen sea near Tresco. Not in quite full summer plumage. ırk and Rodd give only one uncertain record of this species.

Greenshank (*Tringa nebularia*).—One seen and heard on esco on March 17th. Clark and Rodd give only autumn currences.

Lesser Black-backed Gull (*Larus f. affinis*).—Very few d arrived on March 8th. A large flock was seen on a skerry March 17th, and they were numerous on Annet on rch 18th. As Clark and Rodd describe the Lesser Black-ked Gull as abundant all the year, it is worth mentioning t the people of Scilly say these Gulls do not remain at the nds through the winter.

Seton Gordon.
Audrey Seton Gordon.

TRAORDINARY SEXUAL DISPLAY BY A PAIR OF HEDGE-SPARROWS.

April 4th, 1928, I saw a pair of Hedge-Sparrows (*Prunella dularis*) bringing large pieces of moss into a thick box-sh in a garden at Jarnac, France. Both birds were busy the task. On the 10th, in a small paved yard adjoining garden, I saw this pair of Hedge-Sparrows moving on the ound like mice. The first thing I noticed was that the hen

bird had come to a standstill; suddenly the male's wings and tail began to quiver and he moved laterally, hopping from one side to the other, about ten inches behind the hen. Sometimes he went in a full circle round her, his wings and tail quivering rapidly.

The hen did not move, but there was also a constant quivering of her wings, which were held slightly apart from her body, and of her tail, which she lifted. The male, who went on dancing about ten inches behind her, from one side to the other, now got quite close to her, pointed his bill in the direction of the base of the lifted tail, and pecked several times. After each pecking, the hen, as a rule, hopped forward a little, and then placed herself in the same attitude as before.

The display lasted several minutes, but no actual pairing took place during the observation.

On May 15th, the young of the first brood of this pair having left the nest for some days, preparations were being made for a second nest. In the afternoon of this day the hen appeared in the garden, near a bush which presently hid her from view, while the male "danced" behind her, pointing his beak forward at intervals, as in the previous observation. Although the hen was invisible, the behaviour of the male showed that she was just in front of him, and I feel convinced that this time pairing took place.

This pair succeeded in rearing a second brood.

JACQUES DELAMAIN.

LARGE MOVEMENT OF MANX SHEARWATERS IN CORNWALL.

ON April 14th, 1929, there was a large migratory movement of Manx Shearwaters (*Puffinus p. puffinus*) in Mount's Bay, Cornwall. The weather was bright and sunny, with a strong south-easterly wind. I observed the movement from the western shore of the bay and saw that the birds were making a broad sweep across the bay from east to west and passing along the coast at Mousehole Island. I was watching them between 11.30 a.m. and 12.30 p.m. and during that time I walked from Mousehole to Newlyn—about a mile and a half. The birds were moving parallel to the coast over that distance and were passing in what was practically a constant stream. I should say that 150 a minute was a conservative estimate.

G. H. HARVEY.

GREAT SPOTTED WOODPECKER AND BEETLES.

E photograph here reproduced shows the work of the at Spotted Woodpecker (*Dryobates m. anglicus*) on an tree, which was attacked by the beetle (*Sinodendron indricum* Fabr.), locally called "The Rhinoceros Beetle." e tree, about 3 feet in diameter, eventually succumbed to the tle attack, as the Woodpecker's tongue, some 4 to 5 inches

Work of Great Spotted Woodpecker on an elm tree at Cheadle, Staffordshire.

(*Photographed by B. Lowndes.*)

length, could only withdraw the larvæ of the beetle within reach. When the tree eventually fell, in the centre of the nk were found large numbers of the beetle and its larvæ. A hole in this tree about fifteen feet from the ground had en occupied yearly (with about two exceptions) by Tawny

Owls for some thirty-five years, while a pair of Starlings nested in an adjoining hole in 1928 (*antea*, Vol. XXII., p. 42). A pair of Spotted Flycatchers also nested on a small wooden ledge on the opposite side of the tree to the Owls' hole.

JOHN R. B. MASEFIELD.

GARGANEYS IN CUMBERLAND.

IN the afternoon of April 23rd, 1929, at Siddick Ponds, Workington, I saw through ×12 binoculars at about 200 yards a duck and drake, the latter showing clearly a superciliary white stripe. A second drake exactly similar to the first then swam into view from behind the sedge. The dark crown was also noted at that range. I recognized them as Garganeys (*Anas querquedula*).

I went round to the west shore opposite the ducks, thereby reducing the range by nearly half, and at the same time getting the sun behind me, and observed the ducks and the details of their plumage for about three-quarters of an hour from that place. Eventually I approached with a view to seeing the ducks in flight, when I was struck with the light colour of the wings, which were similar in duck and drake.

I think I saw the duck on the following day, recognized by the wing in flight. On the 27th I visited the ponds but saw no Garganeys. M. MCKERROW.

[We believe that Sir Richard Graham has bred Garganeys for a number of years at Netherby and this fact must be considered in connexion with the appearance of so rare a visitor to this area.—EDS.]

WHITE WAGTAIL IN MIDDLESEX.—Mr. W. S. Taylor informs us that he and Mr. W. Kay Robinson saw a male White Wagtail (*Motacilla a. alba*) at Brent (Kingsbury) Reservoir on April 16th, 1929.

EARLY SWIFT IN MIDDLESEX.—Mr. W. S. Taylor informs us that he saw a Swift (*Apus a. apus*) at Brent (Kingsbury) Reservoir on April 15th, 1929. This is a very early date.

PINK-FOOTED GEESE IN MIDDLESEX.—*Correction.*—In line one of the note on this subject (*antea*, Vol. XXII., p. 374) January 13th should read January 18th, and in line twelve (the 13th) should read (the 18th).

A TRANSATLANTIC PASSAGE OF LAPWINGS.—With reference to my notes on this subject (Vol.. XXII., pp. 6, 43, 68), Mr. O. L. Austin, Jnr., now gives some further records of the

earance of Lapwings in Labrador (*Auk*, 1929, pp. 207–210). se he obtained in the summer of 1928 during a trip up the st and he incorporates the information obtained by the vson-MacMillan expedition. The records of the latter w that Lapwings extended up the Labrador coast as far th as Hopedale, where two birds were obtained—December h, 1927, and "late in December." Mr. Austin obtained a 1 from an Eskimo at Makkovik, where the dead bird had n found after the snow had partially melted in April, and ve bird, which Mr. R. Stevenson, the wireless operator at ady, had kept through the winter. Mr. Stevenson stated t Lapwings were numerous in Sandwich Bay and Hamilton et and occurred in flocks of from ten to fifty individuals. Eskimos along the coast from Battle Harbour to Hamilton et also told Mr. Austin of the Lapwings, but no one could a more exact date of their arrival than "during a spell xceedingly mild weather during the week before Christmas" 27). Those who had killed some of the birds said they e much too poor and thin to eat.

n the same issue of *The Auk* (p. 231) Mr. P. A. Taverner es that he has received a skin of a Lapwing obtained at Augustine (north side of Gulf of St. Lawrence, S.W. of our Pt.) "about December 15th, 1927."—H.F.W.

OOT, COMMON AND JACK SNIPES IN LABRADOR.—In nexion with the arrival of Lapwings in Newfoundland and rador, Mr. O. L. Austin, Jr., records (*Auk*, 1929, pp. 9) that he obtained a skin of a Coot which had been taken separation Point, Sandwich Bay (Labrador), in the week ore Christmas, 1927, while another was taken by the vson-MacMillan Expedition in Anatalak Bay "late in ember," 1927. These two birds have been carefully pared and found to be the European *Fulica a. atra*. nains of another specimen already mentioned by me l. XXII., p. 43) are now recorded more definitely by Mr. A. Taverner (*Auk*, 1929, p. 227), this bird having been n in December, 1927, in Exploits Harbour (Newfoundland) 1 two others.

Mr. Austin also obtained a skin of *Capella gallinago gallinago* of *Limnocryptes minimus* from an Eskimo woman, who killed the birds on December 24th, 1927, in Jack Lane's (Labrador).

None of these birds appears to have occurred before on the erican continent and these records, taken in conjunction 1 the great flight of Lapwings, show that the conditions

which I have described as prevailing at the time (Vol. XXII., pp. 8–12) must have been quite extraordinary.—H.F.W.

COMMON SANDPIPER IN WINTER IN LANCASHIRE.—Mr. H. W. Robinson informs us that a Common Sandpiper (*Tringa hypoleucos*) was on Skerton Weir, Lancaster, on February 1st and 2nd, 1929. The bird frequented exactly the same place as an example recorded by Mr. Robinson in January, 1925 (*antea*, Vol. XVIII., p. 26). Mr. Robinson states that when the hard frost set in this year the Sandpiper left, and may have been the same bird as one reported by Mr. A. Astley on Lake Windermere, on February 13th.

AVOCETS IN HAMPSHIRE.—Major Cecil Paddon informs us that in the evening of April 25th, 1929, he saw three Avocets (*Recurvirostra avosetta*) pass over Beaulieu and alight on the saltings, where they remained until dark. Major Paddon states that they appear to have left by the morning as he could then find no trace of them. Two Avocets were recorded in the same place by Major Paddon in May, 1927 (*antea*, Vol. XXI., p. 182).

ICELAND GULL IN LANCASHIRE.—Mr. H. W. Robinson writes that as the Iceland Gull (*Larus leucopterus*) is not mentioned in Mitchell's *Birds of Lancashire*, it may be of interest to record that one frequented the quay at Lancaster from mid-February to mid-March, 1929. Mr. Robinson states that, judging by the plumage, the bird was apparently in its third winter.

EASTERN LITTLE BUSTARDS IN NORFOLK AND SCOTLAND.—It was pointed out in the *Practical Handbook* (Vol. II., p. 816) that the only three British specimens of the Little Bustard I had been able to examine were those in the British Museum and that these were all of the Eastern form, *Otis tetrax orientalis*. I have recently carefully compared, in company with Dr. B. B. Riviere, two Norfolk specimens—a female killed at Hillesdon in 1835, and a female killed at Trunch, some time prior to 1847, both of which are in the Norwich Museum, and these clearly also belong to the Eastern form.

Miss L. J. Rintoul and Miss E. V. Baxter state (*Scot. Nat.*, 1929, p. 26) that a specimen obtained in Kincardineshire on January 1st, 1912, has been submitted to Dr. Hartert, who states that it is typical of *Otis t. orientalis*.—H.F.W.

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PURCHASED

NOTES ON BREEDING-HABITS OF THE EIDER IN THE ORKNEYS.

BY

D. J. ROBERTSON.

For some years I have, along with some members of my family, spent the nesting season upon an otherwise uninhabited island in the Orkneys, and have thus been able to study the habits of the common Eider Duck (*Somateria m. mollissima*). My island, which is about 200 acres in extent, is surrounded by very strong tideways or rosts. There are on it the ruins of a Cistercian Monastery and of the Monks' barns dating back to the twelfth century. No part of it has been cultivated for over seventy years and it is covered in some parts with rough grass and in others with short heather. All over the island the Eiders nest, among the grass, in the heather and among the dried sea-weed thrown up on the beaches by winter gales. At one time the nests were regularly raided by people from the neighbouring islands, who took the eggs not only for their own consumption but for feeding their calves. Since I have tried to make a bird sanctuary of the isle the number of Eiders nesting there has increased, and in the summer of 1928 I knew of 136 nests.

The birds pair about the beginning of May, and ducks and drakes together may be seen wandering over the island looking for suitable nesting-sites. In 1928 the first brood of ducklings was hatched on June 11th and the last on July 27th. The latter must, I think, have been a second clutch, the first clutch or the young birds having been in some way destroyed.

I have only once seen a nest being formed and then all the work was done by the duck, no drake being near. She sat in a tuft of coarse grass and scraped as a Peewit does, but seemed rather to beat down the earth than to throw it out; indeed, I have never found any soil lying round the deep hollow in which the nest is made. Grass or heather is plucked up by the beak and used to line the nest and to cover the first eggs. No down is added to the nest as a rule until the third egg is laid, but so skilfully are the first eggs hidden that until one knows what to look for the nest is not easily discovered. The ducks as a rule begin to incubate only after the full clutch is laid. I have found nests in which more eggs have appeared after incubation has begun, but could never be sure that such eggs might not have been laid by a second duck. Normally all the eggs are hatched on the same

but there are exceptions to this rule. In 1925 I found
st with two ducklings hatched and two eggs which were
hatched a day later. I avoid, if possible, disturbing a
k while the eggs are being hatched, as the ducklings, as
1 as they are dry, are apt to scuttle away and will not
rn to the nest. In June, 1928, a duck had her nest with
eggs on the beach quite near my house. On the morning
une 25th we found the duck had gone, leaving three egg-
ls and one egg, just chipping, in the nest. She had

EIDER DUCKS AND DRAKES IN BREEDING PLUMAGE.

ently not been disturbed as the nest was carefully
red with down. That evening the fourth duckling
hed out, but the duck did not return. The presumption
at incubation must have begun before the fourth egg
laid. I cannot remember ever having found an infertile
eft in a nest. The normal period of incubation appears
four weeks, but this seems not to be invariable.
a rule the ducks nest every year very near, but not
on, the sites of their former nests. I know only one
ption, a duck which has for the last three years nested

in exactly the same place. I have also had only one experience —in 1928—of a duck nesting in another's empty nest. The first brood were hatched and went off and four days later there were two new eggs, covered with grass, in the nest. The full complement of four eggs was laid and duly hatched.

On June 8th, 1925, I found a nest with one egg among some flags. On coming to the place next day I saw from a distance the duck coming out of the flags. On seeing me she flew off to sea. There were then two eggs, one newly laid, in the nest. Up to the time when I left the island on June 15th this duck did not return to her nest, but when I came back on the 29th I found her sitting on four eggs which were all hatched about the middle of July.

During the earlier part of the incubation-period it is not unusual to see a drake sitting on the grass or heather close to his mate on her nest. Last season (1928) I have seen more of them near the nests than I ever did before, but I have never seen one take a share in brooding the eggs. I also observed last season that these drakes were not nearly so easily scared as in former years. One drake, sitting on the grass near the nest, allowed a party of three of us to pass him within ten yards and never moved. Whether the birds are learning that we will not harm them and are becoming more trustful in consequence I cannot say, though I should like to think so. The drakes begin to assume their eclipse plumage about the middle of June and I have never seen a drake in which this change has begun near a nest.

It is quite common to see one, two or three ducks sitting on the ground near an incubating duck. I have found it difficult to discover any reason for this habit. One of my sons suggested an explanation which may have something in it. We know that the young drakes do not come to maturity in their first year and, if this applies to ducks also, may not these attendants be last year's ducks sitting near their mother? These "Aunts," as my family call them, frequently accompany the mother duck and her young brood when they take to the sea. The normal clutch of eggs laid by one duck is four or five, but I have found six, seven, eight, nine and (in 1928) ten eggs in one nest. In some cases two ducks use the same nest, but whether they take it in turn to brood the eggs I have not been able to find out. At one place on the south coast of the isle there are the remains of an old stone wall along the edge of the beach. On the landward side of this wall are several clumps of nettles among which there are generally two or three Eiders' nests.

one of these nests there were in 1925, and each of the two owing years, nine eggs. That there were two ducks ıg the nest I suspected, but I made certain of this in 1927. May 31st of that year the nest contained two eggs. When ext visited it on June 2nd there were six, on the 3rd eight l on the 4th nine. These were all hatched on July 1st, , twenty-seven days after the last egg was laid. Between ıe 2nd and 6th the two ducks were generally both at the t, one sitting on the eggs and the other on the grass outside nettle clump. Though I watched them carefully I er saw them change places. I fancied that this might be ıse of bigamy, but I experimented by driving both birds at one time. They flew down to the sea and I knew that n a duck flies to the sea her mate almost invariably joins In this instance two drakes flew in from sea and led beside the ducks and the birds swam away in pairs. r June 6th another nest was made on the beach within w yards of the wall and in it only one egg was laid. After : the second duck came no more to the original nest. June 1st, 1928, I found a nest with two eggs in the same ıp of nettles and in it eight eggs in all were laid. When eighth had been laid, another nest was again made on beach in which only two eggs were laid.

ıe ducks seem to like company as there are very often nests within a few feet, sometimes within a few inches, ıch other. These nests are not made at the same time, have never known the two broods being hatched out in less than two days of each other.

ıat the ducks leave their nests at times to go down to sea I know, but though I have often seen them flying ı I have never succeeded in seeing one leave the nest. n a duck comes down to the sea she is almost always d by one of the waiting drakes that are swimming l the shores or resting on the rocks. When the duck s her nest without being startled she carefully covers ggs with down. I have found nests so covered at all of the day, so that the birds have no regular time for ıg them. Every season I find one or two nests with ggs so covered to which the ducks have never returned. only explanation of this which I can think of is that the must have been killed or injured in some way. I have : known of a nest left covered for a short time being d by gulls or crows, though that is often the fate of nests which the birds have been startled. Even the nests

which have been forsaken but covered are not touched for some days. If I raise a duck from her nest I always now make a point of covering up the eggs with down, except in cases where the bird only flies a few yards and waits my departure to return to her nest.

The ducks vary very much in disposition. Some become very tame and will allow themselves to be stroked, while others fly from the nest if anyone comes within thirty yards. One became so tame that I could handle her and put my hand under her and move her. To begin with she was not wild, and I came and sat near her daily and talked to her till I won her confidence. I never found this duck off her nest. Another has nested for the last two seasons within twenty yards of our house, and though I have visited the nest at all hours of the day and night I never found her off it.

I do not think that the ducks ever eat during the incubation-period. I have very often watched those that flew down to the sea, but though they splashed and washed themselves I have never seen one dive or feed. I laid a lot of small mussels—their favourite food—close to the nest of the very tame duck I have mentioned, but they were never touched. I was able also to feel her breast and she seemed to me to grow lighter and thinner daily.

That the ducks can, and do, distinguish between their human friends and strangers I am sure. One duck had her nest among some nettles in the ruins of one of the Monks' barns. My little grandson and I used to visit her daily and she became very tame and would allow us to stroke her. One day some visitors came to the island and the boy took two ladies up to see his friend. The moment the duck saw them she left her nest and made off. Only one duck among the hundreds I have known was really bad-tempered. Not only would she not leave her nest, but she struck and bit viciously at any one who came near her.

The ducks vary much in colour, or, I should rather say, in shade. Some are very dark brown, others reddish, almost chestnut, in colour and there are all shades between these extremes. One would think it impossible for such large birds to hide themselves on the bare moor or on the beaches where they nest, yet so perfectly do these colours blend with their surroundings that even the trained eye looking for them can easily pass them over.

THE WALKING OF THE FULMAR PETREL.

BY
C. NOBLE ROLLIN.

'AN any of the Petrels walk on the toes? I think not, and ieve that all the pictures in Saunders's *Manual*, with the :eption of the one by Mr. G. E. Lodge, are incorrect, as I r are the pictures from Lilford of . . . and the Fulmar the background. . . ." Thus Mr. T. A. Coward (1926) (1) ns up the question of the walking of Petrels, and on the ormation then available the conclusion was justified. ere are of course many set-up specimens in museums and lections whose accuracy is at stake as well.

Last year (1928) I made a detailed study, which I hope to nplete this year, of the Fulmar Petrel (*Fulmaris g. glacialis*) ring the breeding season on the coast of Durham. In all, visited the Fulmars between 45 and 50 times during the son and have had them under observation at all hours of day and night. I have therefore had many opportunities watching the method of walking of these Petrels. During observations I have established that the Fulmar Petrel . *and does*—on occasion—*walk on its toes*. Yet, looking ough my notes, I find only five records where there was no dow of doubt as to their being on the toes of both feet. will thus be seen that this walking on the toes is of rare urrence, and unless a would-be verifier of my observations repared to undertake extended watching, he is as likely as to return with negative evidence. In view of this, I feel t more than mere mention of the occurrence is necessary. ave therefore given my observations in full. I would like nention here that I write all my records in full in the field hin a few minutes of making my observations.

he Fulmar's normal and usual method of progression on l is to walk on to the whole length of the tarsus and in this nner I have seen them attain a slow run on a level surface. en moving from one elevation to another they are rather nsy and seem content to fall a few inches from one ledge to next, sometimes using the wings as props.

he following are the records of the occasions on which I Fulmars on their toes. All the dates refer to 1928.

. May 20th: I saw both birds of a pair walking about their ;e on their *toes* and in this manner change places. Later, of them stood up on its toes and stretched one wing, after ch it subsided again on to the tarsi. Afterwards nest-ding was started by this bird.

(1) T. A. Coward, *Birds of British Isles*, III., p. 235.

2. May 22nd: I was watching a pair on the same ledge as above when a third Fulmar settled beside the other two, and in the excitement that followed one of the original pair walked about on its toes, though not very high.

3. June 3rd: One of a pair on a different ledge from the above walked past in front of its mate on its toes, but again not very high up. Its gait seemed of a rather waddling nature. I could see no cause for excitement and this pair slept for the major portion of $1\frac{1}{4}$ hours after this incident.

4. June 3rd: Not far off I saw a single Fulmar making a tour of inspection of its ledge. Most of its walking was done on the toes, though it subsided into a resting position every few steps. I made a sketch of about the average number of degrees of the tarsi from the horizontal when the bird was walking on its toes. On measurement this gives an angle of 30°, but this is only very approximate.

5. July 8th: I was again watching a pair on the first-mentioned ledge. They were calling a little to one another at intervals, when a third Fulmar settled beside them; there was then much calling on the part of both of the pair, and one of the pair stood up with its tarsi at an angle nearing the perpendicular, one tarsus being a *little* nearer the perpendicular than the other. A little later the same bird stood up again just as before *and in this position* it called from side to side with its neck outstretched, apparently quite steadily and then, so far as I could see, without subsiding at all it opened its wings and flew off from this upright position. A sketch of the angle of the tarsus gives 83° from the horizontal.

When watching a brooding Fulmar with a young one about three days old, the brooding bird stood up with her tarsus almost perpendicular and her breast considerably higher than the horizontal. The young bird was brooded between the legs and when the parent settled down I saw that, though the parent's chest was resting on the ledge, the tarsus was considerably above the horizontal (measurement of sketch gives 50° from horizontal), and with the tarsus in this position the brooding bird would doze, every now and again either raising its body up and settling down again or just raising the tail end whilst the chest remained on the ledge. Four days later I was again watching this brooding bird. It was brooding with its bill under its scapulars and raised itself on to its toes and I noted that the young one—whose head was between the brooding bird's tarsi—was preening itself. Though the brooding bird stood up like this on its toes for a little while,

id not remove its bill from under its scapulars. In these ances of the brooding bird standing on its toes I could y see the tarsus on the near side, the other being hidden by young bird, but the position of the brooding bird left little ıbt that it was standing on the toes of *both* feet and not ning on anything on the far side.

Vhen the young Fulmar referred to above was about four ive weeks old, I noted that when it was moving about the ge its walking was strictly on the tarsus, its legs seeming to weak. Its walking was sometimes aided by its wings.

)n other occasions than those cited above I have seen what ; probably walking on the toes, but unless the conditions observation are favourable it is not easy to make absolutely ain that the Fulmar is standing on the toes of both feet. instance where I made all but certain was rather interes- in that it was an arriving bird instead of one of the pair t stood on its toes. I was watching a pair from above at istance of about 4 ft. Another Fulmar persistently landed the steep bank leading down from the ledge and sometimes ld come running up with its wings half open and apparently its toes. Each time it was sent off by one of the pair.

'here is usually great excitement when a pair of Fulmars oined by a third Fulmar ; they also become very excited ing nest building.

.he above observations show, firstly, that the Fulmar rel can and does walk on its toes though only infrequently, secondly, that sexual excitement, *i.e.*, nest-building or usion on a pair by an alien, is the most usual cause of r so doing.

Ir. G. Gillett,(1) when writing on the Fulmar says : " When ed on deck is quite unable to rise or even to stand upright, shuffles along by the help of its wings." This I take it ı Fulmar under stress of fear or bewilderment. Mr. ard(2) has noted a Manx Shearwater " confused " in a ewhat similar manner.

n land, then, the Fulmar may be considered to have at t three modes of progression : (*a*) Its normal method on tarsus ; (*b*) on its toes, usually due to sexual excitement only infrequently used ; (*c*) a shuffle with the aid of its gs under stress of fear or bewilderment.

(1) G. Gillett, *Ibis*, 1870, p. 307.

(2) T. A. Coward, *Birds of British Isles*, III., p. 232.

BEHAVIOUR OF TITMICE UNDER ARTIFICIAL CONDITIONS.

BY

ALICE HIBBERT-WARE, F.L.S., M.B.O.U.

THE writer has been watching closely and recording the behaviour of birds in artificial conditions of feeding during the last four years. Food is supplied in such a way that only one bird can seize it at a time. A small saucer containing nuts and seeds is placed on a window-sill or inside the room, or else the food is offered at the window on the human hand.

In February, 1925, two Marsh-Tits (*Parus palustris dresseri*) were attracted indoors by means of pea-nuts. They soon learnt to ask for food, when the saucer was empty, by fluttering down the lattice-windows with outspread wings. Much of the food, in those early days of tameness, they hid under dead leaves on the grass or elsewhere. Confidence in a constant supply seems to have made them give up this habit, as it never comes before our notice now. Early in April we lost sight of the pair, but on October 13th a Marsh-Tit fluttered down the window. We placed some nuts on the table in the room and it took them at once, resuming the same behaviour as early in the year. This incident seems to indicate the possession of non-instinctive memory in this Marsh-Tit. Its mate soon followed its example. Then in November the female began to feed from the hand. It had the necessary courage from the first—no gradual training was given—the very first time the nut was placed on the hand the Tit took it. By January, 1926, both sexes fed daily from the hand of anyone who offered them nuts. The tamer bird, the female, habitually stows three or four fragments in her bill at a time. Like all Tits she flies to a branch to eat them, but how she manages to place them all under her foot we have never been able to watch. No other Titmouse has been seen to carry more than one portion at a time, hence this personal trait has enabled us to recognise her individuality as the same bird, year after year. She may still be seen, many times daily, fearlessly exploring the floor or, by preference, feeding from the hand whenever she has the chance.

The tameness of these Marsh-Tits was apparently spontaneous and inborn. With other Titmice it has been different, for they have gained courage only by slow degrees. Day after day, from September, 1926, till January, 1927, a Coal-Tit (*Parus ater britannicus*) fluttered near and over the hand without securing the nut, but it succeeded at last, though it remains shy to this day. All Blue Tits (*Parus cæruleus obscurus*) that come to the window-sill seem to be more

id of their fellows than of human beings. Clinging to the er or the hand, they twist and turn their heads so long frequently they do not secure the food. Like the Coal-, they had to learn to come to the hand, but they do so y freely in cold weather. With the Great Tits (*Parus or newtoni*) the process of learning by slow degrees was e marked still. During the early months of 1927, two at Tits were constantly to be seen on the tree outside the dow, waiting for a stray crumb of nut to fall their way. y showed no signs of becoming tamer even during a spell rost and snow. In September, 1927, a pair began to visit food saucer. Though they were probably the same birds those of spring, we cannot be certain on the point. By ember six Great Tits were coming readily to the hand into the room. The following entries from the writers' rds will show their rapid development since 1927.

October, 1928: The Great Tits are quite out of hand. y seem to think that every cushion and every newspaper produce nuts. A cushion on a garden chair was slit by n, and the daily paper has twice been torn to pieces by akfast time. The reason would seem to be that there cushions on the chair from which I feed them and the s are crushed on a newspaper."

January, 1929: This season is marked by the increase Great Tits, both in numbers and tameness. There are m eight feeding at a time. They form a queue, each ing a nut from the saucer. They enter my bedroom dow early each morning, hop up the eiderdown and carry scraps of bread-and-butter. They explore the room and l vigorously on palm-olive soap. They hammer the cover he milk-bottle left on an outside table. They intimate the food saucer is empty by hopping on to the nut bottle, when it is empty."

n interesting feature in these experiences with both sh- and Great Tits is that during the early stages of eness both species seemed to "run-a-muck." The sh-Tits in their first season would hop up a person's leg fetch nuts from the knee. They would alight on a plate ng a meal and carry away the pips of a baked apple. y would take food from the tea-table with six or more ple in the room. Though no less tame than they were, y no longer do these things. The same is true with the at Tits. Happily, they have ceased to attack cushions, spapers, blankets and wallpapers as they did three nths ago. The first excitement of new conditions has sed and their actions have become more balanced.

NOTES

PRESENT STATUS OF THE YELLOW WAGTAIL ON LOUGHS MASK AND CARRA.

As a result of information given them by the late Mr. Good of Westport, that the Yellow Wagtail (*Motacilla f. rayi*) nested extensively on Mask and Carra, the late Robert Warren and Mr. Williams of Dublin proceeded in 1893 to investigate, with the results recorded by Warren.* Ussher also found the bird plentiful on Mask in 1895.†

As a result of their investigations, we find in Ussher and Warren's *Birds of Ireland*, p. 39, para. 1, and also in the *Zoologist* and *Irish Naturalist*, statements which cannot, I fear, be considered as accurate to-day.

Colonel Lascelles, who for several years made careful study of the birds of these lakes, and made particular search for the Yellow Wagtail, met with only three pairs, all in 1917, on Philyour, Drineen and Corrigeendavoe respectively, but never found the nest.

A boatman, taught by Colonel Lascelles to distinguish the Yellow Wagtail, considers them very rare on Lough Mask. He has ample opportunity for observation, and in 1924 told both Colonel Lascelles and myself that he had not seen Yellow Wagtails since 1922. He does not see them annually by any means, but in 1928 noticed two on Rialisk about mid-May and one on the shore near Cuslaugh about June 20th. He did not think they looked like nesting. I have spent much time on both Loughs Mask and Carra since 1915 and have never yet come across a Yellow Wagtail, though always on the look-out for them. This led me to make particular search in 1924 on several days, and I was many days near their haunts.

In 1928 I made even more thorough search, visiting many of the most likely places early in the season when the birds would first be expected to be nesting, and again later in the hope of seeing them feeding or being with their broods, but was disappointed on both occasions.

I cannot suggest any reason for the apparent almost complete disappearance of the bird from these lakes where, at one time, it was so well established, unless, indeed, it be the unfavourable seasons experienced in recent years.

ROBERT F. RUTTLEDGE.

* *Irish Naturalist*, 1895, p. 118, and *Zoologist*, 1897, pp. 346–7.

† Ussher in *Irish Naturalist*, 1905, p. 128.

ROBIN NESTING ON A BED IN AN OCCUPIED ROOM.

N April 28th, 1929, in response to a letter from Mr. M. P. ollack, of Kendal End, Barnt Green, near Birmingham, I ent to see the nest of a Robin (*Erithacus r. melophilus*) built n a bed in his house. The bird was sitting on the nest when

saw it, and it was about four feet from the open window. Ir. Pollack has since kindly furnished me with full particulars f the occurrence.

At the end of March, one morning, he noticed some leaves n the dressing-table; they appeared to have been blown in t the window, so they were swept away. Next day, more

leaves were found on the end of the bed, in the "tunnel" caused when the bed-clothes were thrown over the end of the bed in the early morning. These were also cleared away, but in a day or two a Robin was seen bringing them, and accordingly a cardboard box was supplied, and the nest was built in this.

The nest was begun on April 1st and completed on the 13th or 14th. The first egg was laid on April 16th, about 6.45 a.m., the second on the 17th about 6.30, the third on the 18th about 7.30, the fourth on the 19th about 7, the fifth on the 20th about 7.30. The hen did not sit regularly till April 27th. The eggs were hatched on May 6th about 6 a.m. Both parents continually fed the young. The young left the nest at about 5 a.m. on May 19th. During the day the young flew about the room, and then found their way out, with one or other of the parents.

I understand that the bed was in regular use; of course the window was kept open all the time. H. G. ALEXANDER.

REED-WARBLER IN PEMBROKESHIRE.

WITH reference to the statement in the *Practical Handbook* that the Reed-Warbler (*Acrocephalus s. scirpaceus*) is not found in Pembrokeshire, we wish to record that a male was seen and heard by us in the reed-bed at Llanrhian, north of St. Davids, on May 30th, 1929.

H. A. GILBERT.
J. WALPOLE-BOND.

HERON SWALLOWING SNAKE.

ON May 10th, whilst watching through my glasses the movements of a Heron (*Ardea c. cinerea*) as it stalked amongst the bog-myrtle and sedge near Shapwick, Somerset, it suddenly flopped along with one wing partly extended and then flew up, with a grass-snake, almost, or quite, two feet in length, dangling from its bill. It pitched again on a patch of grass, and after about a minute, during which time it was evidently engaged in killing the reptile, although I could not see this distinctly, I saw it swallow the snake, extending its head and neck in an almost erect position to do so. I send this note in confirmation of my previous one (Vol. XXII., p. 65), for it proves that on the Somerset peat moors, grass-snakes are a more or less normal part of the Herons' diet.

STANLEY LEWIS.

HERON SWIMMING.

ON March 14th, 1929, as I was approaching the Upper Bittell reservoir, north Worcestershire, I was astonished to see a large grey bird swimming near the deep end of the reservoir. It proved to be a Heron (*Ardea cinerea*). After a few moments a Hooded Crow (*Corvus cornix*)—a single bird which, for the first time in my experience, has spent the winter by the reservoir—swooped at it; the Heron then rose from the water, but settled a few yards further away. Then the Crow returned to the attack, the Heron rose again, and flew across to the shore, where two others were standing. The reservoir had only just thawed after the long frost, but it does not seem likely that this can have had any connection with this curious behaviour. Some years ago I thought I saw a Heron swimming on the reservoir, but I could not then be absolutely certain that it was not wading in deep water. On this occasion there was no such possibility. Nor did it seem to settle on the water to escape the attacks of the Crow. It looked more as if the Crow was outraged by its surprising behaviour. H. G. ALEXANDER.

LITTLE BITTERN IN FLINTSHIRE.

ON May 7th, 1929, a keeper, being attracted by the noise of several small birds and thinking that a stoat or hawk was about, entered a wood, about a mile and a half from Connah's Quay. A bird got up which he did not recognize and he shot it. It proved to be a female Little Bittern (*Ixobrychus m. minutus*). ROGER CHARLTON.

GREY LAG-GEESE IN KENT.

WHILE in Romney Marsh on April 17th, 1929, I put up a party of four Grey Geese from behind a bank, which I was approaching. They rose from the side of a fleet about forty yards from me and flew in a file away to my left. In my glasses every feather was clear. Their plain pink bills and the very pale grey wing-coverts strongly contrasting with the darker grey of the wing and back feathers left no doubt in my mind that they were Grey Lags (*Anser anser*). I afterward put them up again from a grass field, but at too great a distance to see them well. They flew off, a long distance in the direction of the coast. Mr. H. G. Alexander's observation (Vol. XIX., p. 26) was the first and only other certain record of this species from Romney Marsh. N. F. TICEHURST.

GREY LAG-GEESE IN WORCESTERSHIRE.

On March 23rd, 1929, I saw six Grey Geese on the Upper Bittell reservoir. When first seen, they were swimming, but they soon left the water. I had only seen four birds on the water, and I managed to get quite near to them, and was just getting them in my glasses again when two others rose from even nearer, where I had not seen them, and the other four followed them out on to the water again. However, I got an excellent view of them as they swam on the water, and the size and shape of the bill were clearly visible; I could even see that two or three of them had traces of white by the base of the bill. Their identity as Grey Lags (*Anser anser*) was thus unmistakable. The keeper told me he had seen them a few days before, and they remained for over a fortnight, never flying very far, and never seeming very shy. I saw them either feeding on the meadows or on the water on the 29th and 30th and on April 5th. The white edges of the wings showed very strikingly sometimes in flight, and in favourable light even the white nail was visible. Twice I watched them at a distance of under a hundred yards. From their behaviour I am inclined to think that they were three pairs. A number of other observers also saw them; they were last seen, I believe, by Mr. E. St. G. Betts on April 6th.

H. G. Alexander.

SHOVELER BREEDING IN CARMARTHENSHIRE.

As there appears to be no authentic record of the breeding of the Shoveler (*Spatula clypeata*) in Carmarthenshire, the following may be of interest.

While walking near Laugharne on May 6th, 1929, through some rushy, low-lying grass-land, a duck got up about 70 yards off, to my left front; as she turned to fly into the wind I clearly saw her blue-grey shoulders. On proceeding to the spot whence I judged she rose, I found an uncovered nest containing seven eggs with two more just outside. It was difficult to find feathers or down as the whole nest was water-logged, at least three eggs being half covered in water. Two days later there were eleven eggs, the nest was somewhat drier, and there were more feathers and down. The eggs on this occasion were practically hidden by grass which had been bent down to them. The eggs were of a buff colour, with perhaps the faintest tinge of green, and when compared with Mallard's eggs (a nest close by) they were seen to be appreciably smaller. A sample of the down matches that of the Shoveler quite well.

J. F. Thomas.

MADEIRAN LITTLE SHEARWATER IN NORFOLK.

N May 11th, 1929, a specimen of the Madeiran Little Shearwater (*Puffinus assimilis baroli*) was picked up dead on the each at Blakeney Point by R. Pinchen, the watcher. It was n perfect condition and proved on dissection to be a female. he measurements, which were taken while still in the flesh y Mr. F. E. Gunn, to whom it was sent for preservation, were s follows: wing, 175 mm.; bill, 24 mm.; tarsus 35 mm.

The only other Norfolk specimen, which is in the possession f Mrs. Meade at Earsham Hall, was picked up on the Earsham state on April 10th, 1858. This bird is generally referred to in e text books as found "near Bungay, Suffolk," but Earsham on the Norfolk side of the river Waveney. B. B. RIVIERE.

URTLE-DOVES RETURN TO LAST YEAR'S HABITAT.

N *British Birds*, Vol. XIX., p. 255, I gave an account of the urtle-Doves (*Streptopelia t. turtur*) which came regularly be fed along with domestic Pigeons in the garden of Mrs. teavenson, Bicton Heath, Shrewsbury. Each year the arent birds bring their young as soon as they can fly to feed ith the others. The birds return year after year to the me place. At the end of last season they numbered twenty-ur, including the young of the year.

Mrs. Steavenson tells me that this year two appeared on pril 27th and two more on May 1st. The four fed together to the 9th. In the evening of the same day, about five clock, 14 came together in a flock! Next day (10th) these 4, with the four earlier arrivals, making a total of 18, all me to be fed together. Apparently 18 out of the 24 that ft here last September have returned. But what strikes e particularly is the fact that 14 of these returned together. looks as if they had kept together in their winter quarters, herever these were. H. E. FORREST.

RUFF AND BLACK TERN IN MIDDLESEX.

N May 1st, 1929, at the Littleton Reservoir (Middlesex), a uff (*Philomachus pugnax*) and a Reeve were feeding along e concrete bank in company with four Dunlins. The Ruff's ndy-buff frill was unmistakable, while his upper-parts were ack-purple and his legs orange-red.

On the same day a Black Tern (*Chlidonias niger*) was flying w over the water for about half an hour.

Next day we saw neither species on the reservoir.

T. H. HARRISSON.
P. A. D. HOLLOM.

BLACK-TAILED GODWIT IN SOMERSET.

On May 4th, 1929, I watched a Black-tailed Godwit (*Limosa l. limosa*) at Blagdon reservoir, north Somerset. There was very little red on the breast, so I conclude it was an immature bird. Though fairly tame, the bird seemed tired, and was rather restless. On May 5th an adult bird with a conspicuous red breast was seen at Blagdon by Mr. J. D'Eath. It is interesting to recall that two birds of this species were seen at the reservoir by Mr. B. W. Tucker in 1926 (Vol. XXI., p. 187). C. R. Stonor.

LITTLE TERN BREEDING IN SOMERSET.

Mr. B. W. Tucker's note (Vol. XXII., p. 376) may be the first recorded instance of the Little Tern (*Sterna a. albifrons*) breeding in Somerset, but it has been known to do so by myself and at least two others for several years. I refrained from publishing anything in the interests of the birds. It is well known that I am getting together as perfect a collection as possible of the eggs of Somerset breeding birds, and I thought that until the birds were better established one collector at a time would be sufficient. The breeding-place (not mentioned by Mr. Tucker) is the low-lying Stert or Steart Island in the estuary of the Brue and Parrett, close to Burnham-on-Sea. Birds were seen there, and probably bred, in 1923, the first nest, containing two eggs, was found by two friends of mine in May, 1924. On June 11th, 1925, I found four nests; three containing two eggs each, and one containing three. On June 1st, 1926, I found two nests, and on the 14th three, containing from two to three eggs each. The nests were fairly close to each other, as there was one small colony only. There were two favourite sites, at the north-east and south-west, which seemed to be used alternately. This makes a total of ten nests containing eggs found on the island in the course of four years, prior to the one found by Mr. Tucker in 1928. The island is now a sanctuary under the care of the Royal Society for the Protection of Birds.

I may also give the information, unknown I believe, to anyone else, that this is not the only place in Somerset where the Little Tern has recently bred. Stanley Lewis.

Birds in Yorkshire in 1928.—The following items appear in the Yorkshire Naturalists' Union's Annual Report for 1928, printed in the *Naturalist*, February, 1929.

Blue-headed Wagtail (*Motacilla f. flava*).—A male examined at close quarters by Mr. F. Snowdon near Whitby High Light on May 5th, 1928 (p. 78).

MARSH-WARBLER (*Acrocephalus palustris*).—One was seen and heard out The Mere at Scarborough on June 10th by Messrs. A. T. Wallis d T. N. Roberts, the former of whom has had experience of the ecies on the Continent (p. 78). There appears to be no previous cord for Yorkshire.

STOCK-DOVE (*Columba œnas*).—In the East Riding it is said that ese birds, owing to increasing numbers, have resorted more and more plantations, building nests like Wood-Pigeons. In one case, well ntified, the bird was sitting on a nest in a hawthorn hedge (p. 80).

GANNET (*Sula bassana*).—The pair at Bempton again failed to nest, nesting material of two attempts being carried away by Kittiwakes before (p. 81).

DECREASE OF HOUSE-SPARROW IN THE SHETLANDS.—In 26 Surgeon Rear-Admiral J. H. Stenhouse remarked on the eat diminution of *Passer domesticus* in Fair Isle (*Scot. Nat.*, 27, p. 54). In September, 1926, it was estimated that there ere not more than forty House-Sparrows on the island, here formerly there were at least eight hundred. In May, 27, ten breeding pairs were counted, while in April, 1928, ly four pairs could be seen. (*t.c.*, 1928, p. 162). At mburgh, on the mainland of Shetland, there are said to be House-Sparrows and at Sandwick there are very few, ough they were formerly plentiful, and on Bressay they are appearing. Sparrows have been seen ill and crawling into les and are reported "to get a swelling in their heads and eir eyes enlarge to bursting point." As Admiral Stenhouse marks, pathological examination of the bodies of dead birds above all, desirable, and we hope this will be done.

EVERSMANN'S WARBLER AT FAIR ISLE.—Mr. G. Stout cords (*Scot. Nat.*, 1928, p. 164) that an example of *Phyllopus b. borealis* was obtained at Fair Isle on July 30th, 28. This is the eighth recorded occurrence in Great Britain d the fifth for Fair Isle. The date is exceptionally early, vious records having been for September and one October.

SPOONBILL IN HAMPSHIRE.—Sir Thomas H. C. Troubridge tes that a Spoonbill (*Platalea leucorodia*) visited the neighrhood of Beaulieu for several days during the week y 6th to 12th, 1929.

TAMENESS OF WHOOPER SWANS IN SCOTLAND.—Mr. T. lie Smith writes (*Scot. Nat.*, 1929, pp. 26–7) of the tameness some Whoopers (*Cygnus cygnus*). Two of these birds, ich arrived in January, 1928, at Broughty Ferry (Forfar), ned a flock of Mute Swans and, staying until the end of ril, gradually became tamer and tamer and readily came

for food. At the end of October, 1928, three Whoopers again appeared, and two of these joined the Mute Swans and regularly approached human beings for food and even at times took food out of children's hands. Mr. Smith's photograph of one of these Swans, reproduced on page 27 of the *Scottish Naturalist*, was evidently taken at very close range.

We also hear from Mr. D. J. Robertson that some Whoopers which were present from January to April in the neighbourhood of Finstown (Orkney) became tame, though not so markedly as those recorded by Mr. T. L. Smith. Mr. A. Wood of Finstown writes that during the frost in February he passed within twenty feet of two of these birds without disturbing them.

EIDER NESTING IN BUTE.—Mr. J. Robertson records (*Scot. Nat.*, 1928, p. 125) that he saw a female Eider (*Somateria m. mollissima*) with two half-grown young at St. Ninian's Bay, Island of Bute, on June 23rd, 1928. In his *Birds of the Island of Bute*, published in 1927, the Rev. M'William stated that probably the Eider would be found nesting in Bute and Arran before long, as it was extending its range in that area.

LATE BROOD OF GREAT CRESTED GREBE IN SCOTLAND.—Mr. D. Hamilton states (*Scot. Nat.*, 1929, p. 29) that he saw on a loch in West Lothian on October 21st, 1928, a *Podiceps cristatus* with two young, which, judging by size, could not have been more than a week old. On December 9th they seemed almost full size, but still showed the striped plumage of the young.

AMERICAN PECTORAL SANDPIPER IN CAITHNESS.—Dr. C. B. Ticehurst records (*Scot. Nat.*, 1928, p. 168) that an adult female *Calidris maculata*, sent to him in the flesh, was shot by Mr. M. G. Wathen in a Snipe bog at Dunnet Head on September 3rd, 1928. This is the fourth Pectoral Sandpiper recorded from Scotland. The three previous examples were stated to be the American bird, but as the distinctions between *C. maculata* and *C. acuminata* were formerly not fully understood, it would seem advisable that all old specimens of Pectoral Sandpipers should be critically re-examined. The Orkney example, for instance, is stated by the late T. E. Gunn (*Zool.*, 1889, p. 452) to have had "arrow-pointed" markings on the breast, which rather indicates the Siberian species. The shape of the tail, which is the most important character, is not, however, described in sufficient detail to make the identification clear.

Spotted Redshanks in Fifeshire.—Mr. W. Berry reports (*Scot. Nat.*, 1928, p. 133) that on August 14th, 1928, he saw two *Tringa erythropus* at the Morton Lochs. The bird has occurred previously in Fifeshire, but must be regarded as a rare visitor to Scotland.

Roseate Tern Breeding in Fifeshire.—Mr. E. Crapper, in a paper on some birds of Tentsmuir (*Trans. & Proc. Perthshire Soc. Nat. Sci.*, Vol. VIII., pt. v., 1927–8, p. 251), describes the breeding of a pair of Roseate Terns (*Sterna d. dougallii*) on Tentsmuir in June, 1927. Mr. Crapper had seen one or two birds here in four previous years, but it was not until June 18th, 1927, that he found the nest, which was placed among a colony of Sandwich Terns (*S. s. sandvicensis*). Photographs of the bird at the nest appear in Plate 37. It is many years since the Roseate Tern has definitely been reported as breeding in Scotland, though it has several times recently been suspected of doing so.

LETTER.

THE DIVING OF SCOTERS.

To the Editors of British Birds.

Sirs,—With reference to the discussion on the diving of Scoters (Vol. XXIII., pp. 214, 378) may I contribute the following note: The Liverpool Bay Scoters are, at times, driven by stress of weather to take refuge behind the sandhills of the Lancashire coast. Here are sound pools, locally "slacks," on which the Scoters rest. For some distance a yard-wide drain connects the slacks. One day I surprised a male Common Scoter, asleep, on the bank of the drain. He leaped into the water and dived, swimming along the drain, submerged, but quite visible in the clear water. The wings were not used for swimming, but were not entirely closed; I was surprised to see that the "bastard" wings were completely extended during the swim. The impression I received was that the partly spread wings and the extended bastards were being used to preserve the balance of the bird.

George Marples.

REVIEWS

A History of the Birds of Essex. By William E. Glegg, F.Z.S., M.B.O.U. Demy 8vo. Pp. xxxv., 342, 20 Plates and a Map. (H. F. & G. Witherby.) 25*s*.

So many changes have taken place in the thirty-nine years that have elapsed since the publication of Miller Christy's well-known *Birds of Essex*, that the time was ripe for a more up-to-date account of the birds of that county. In undertaking this task Mr. Glegg has been very fortunate in having the help of an actively interested county Natural History Society and for the greater part of the period of his work the approval and support of the author of the earlier work. It is much to be regretted that the latter did not live and see the completion of the new one. In his preface Mr. Glegg explains how he preferred to produce a totally new book on his own lines rather than a revised edition of the earlier one. In this we think he was right, for, though no doubt this entailed a great deal more work, he was able to trace each record and statement back to its original source and form his own judgment upon them, and judgments change with the passage of years and in the light of new knowledge. The arrangement of a new book, too, could be brought into uniformity with the other more recent county faunas. In any case, much of what Mr. Christy wrote would necessarily have been rewritten, for, as in many of the older faunas, he had included a good deal that was really unnecessary and had depended too much upon long verbatim quotations. Mr. Glegg has rightly replaced most of this by short summaries, but we cannot help feeling that he has carried this somewhat too far. There is thus a great deal of interesting information in the earlier work that is not to be found in the later. One may mention as instances the chapter on former Essex Decoys, which Mr. Glegg dismisses in half a page, though it is clear he has spent considerable time and trouble in fixing their sites. There are also Harting's contribution on early Hawking, which Mr. Glegg omits to mention, and several other items of pre-nineteenth century history. Future workers on the Birds of Essex will therefore have to remember that these two county histories to some extent supplement one another and that the newer one cannot in every respect replace the earlier.

In the Introduction will be found a quite sufficient account of the geology of the county and the bearing of this on its natural features, while in a succeeding section the effect of these on the local distribution of species is summarized in a series of tables. This subject of Ecology, long neglected by British ornithologists, is becoming more and more important with the progressive changes in our countryside. In the present case the establishment of the Lea Valley Reservoirs occurs to one at once as an example of how such changes can affect the distribution of the species, and Mr. Glegg is to be congratulated in setting the example by including a section on this subject, which future county historians will be unable to ignore.

As regards the body of the work, the nomenclature is up-to-date and the treatment of each species is quite what it should be for a county fauna; the status, distribution and migrations of the common ones are

shortly summarized and defined so far as they are known, while the records of the rarer ones are for the most part adequately dealt with. Free use is made of square brackets on the lines advocated by Harvie-Brown, but there appear to be one or two cases of unexplained inequality of treatment. Thus the Alpine Swift is accepted on a sight record alone, while the Northern Long-tailed Tit, also a sight record, is square-bracketed. There may be perfectly good grounds for this, known to the author, but they are not apparent to the reader. The Icterine Warbler also is admitted to full county status on the strength of Dr. Eagle Clarke's record from the Kentish Knock. Of course it was perfectly correct to refer to this bird, but surely in the case of a lightship 27 miles from the nearest land it would have been wiser to square-bracket the record. The Continental Goldcrest might well we think have also been given a separate square-bracketed paragraph, for though no actual specimen has been recorded from Essex, there cannot be much doubt but that the autumn Light records, given under the British race, refer at any rate in part to this form. Such treatment would probably be a closer approximation to the truth and would serve to emphasize the point that further information is desirable.

The inclusion of the three Hawk Owls from the Vauncey Crewe Collection as accepted records seems to be distinctly hazardous. The work of many future county historians will have been made infinitely harder than it need have been by the regrettable and absurd secrecy with which this collection was accumulated and kept, while the total absence of any proper catalogue of it but adds to the difficulties. It becomes therefore all the more necessary to exercise particular strictness with regard to the acceptance of records based on specimens from this source. In the present instance one is naturally sceptical that these three birds should have been shot near together in Essex within a space of ten days. One of them, whose history has been traced by Mr. A. F. Griffith, one might perhaps be disposed to accept, but the records of the other two appear to depend entirely upon the data given in the sale catalogue of the collection. The accuracy of this can be gauged by comparing that of the first with the particulars ascertained by Mr. Griffith!

On reading the accounts of the different species there are several points that strike one as curious and as calling for more explanation than is forthcoming on present knowledge. For instance, the extraordinary rarity of the Wood-Lark, the fact that there are only two satisfactory breeding records of the Grasshopper-Warbler and the status of uncommon passage migrant assigned to the Sanderling, Turnstone and Bar-tailed Godwit. The absence of evidence of any extensive coastal migration is also curious. The author suggests that those well-known movements that characterize the Norfolk and Suffolk coasts, chiefly in autumn, miss the Essex coast owing to the south-westward trend of the coast-line, the birds cutting across more or less due south for the coast of Kent. This may be so, and the lightship records lend some support to the theory, but since we know that these coastal movements extend south to very near the Suffolk-Essex boundary, a good deal more continuous watching on the Essex coast, than appears to have been carried out is required to settle the point. The westward flight of autumn immigrants up the Thames estuary is another phase of migration that Mr. Glegg is able to tell us very little about. We know, from the observations of Mr. Power and others, that the volume of movement along the southern shore is very

considerable. A good deal more observation on the northern is required before we can be certain that a route along that coast is not also used. There are several other subjects on which it is clear that a great deal remains to be done in Essex, and besides the points already mentioned we commend the following to such members of the Essex Field Club as have the inclination and leisure to take up the work. Historically, there must be many sources of untapped information in ancient documents, records, churchwardens' accounts, and so on, from which information can be gleaned on the past history of several species. The former breeding of the Kite, Buzzard and Goshawk, for instance, which no one can doubt, rests at present on very scanty evidence. Then there is the tracing of old specimens, such as those of the Parrot Crossbill, Nutcracker, Little Bustard, etc., in order to determine whether they have been correctly identified, or to what geographical races they belong. The distribution of the Willow-Tit requires working out; it has only been identified twice from a single locality. Although there can be little or no doubt that the Continental Jay, Goldcrest, Song-Thrush and Robin, the Northern Willow-Wren and Great Spotted Woodpecker, the Greenland Wheatear and Scandinavian Lesser Black-backed Gull, must all be more or less regular passage-migrants or winter visitors, not one of them has yet been positively identified in the county. When found, their status and migrations will require working out. The question of the status of the Grey Geese is always a difficult one, particularly in the southern counties, and further work still remains to be done on this. The proof of the breeding of the Wigeon, of which there is strong presumptive evidence, we trust that Mr. Glegg will himself be able to obtain before many more seasons are past. These suggestions of what still remains to be done are no detraction from Mr. Glegg's work. What he has done has been done well, and an up-to-date summary, such as he has given us, was what was required and furnishes the necessary stimulus to further effort.

A notable and very useful feature of the book is the very full bibliography which is designed on quite new lines: a reference number is given to each source of information, so that a series of these numbers given at the head of each species enables one to look up at once the original source whence the author's knowledge or quotation is derived. The illustrations, all reproduced from photographs, are for the most part excellent and adequately present the different types of country that influence distribution, as well as some of the more interesting nesting species. The map is an unusually plain and good one. It shows the contours clearly, and besides marking the positions of all the buoys and lightships off the coast, has the positions of all the former Duck decoys indicated by numbered labels which correspond to the list of decoys in the Introduction. N.F.T.

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PURCHASED

NOTES FROM THE SOUTH LANCASHIRE COAST.

BY

F. W. HOLDER AND R. WAGSTAFFE.

These further observations, made by the writers, are supplementary to those recorded in *British Birds* (Vol. XXI., pp. 190-194) and have been taken within the area defined in that contribution.

HOODED CROW (*Corvus c. cornix*).—Two appeared on Martin Mere on December 30th, 1927, and remained for several days.

BRAMBLING (*Fringilla montifringilla*).—In 1928 parties were observed on Martin Mere on March 14th and November 8th. Large flocks of this species are not of normal occurrence near Southport, but after the snow which fell in the early part of January, 1929, a flock of several hundreds arrived on the 11th, on the cultivated portion of Martin Mere.

CORN-BUNTING (*Emberiza c. calandra*).—A nest containing four eggs was seen at Scarisbrick on August 6th, 1928. It was situated on the top of a furrow in a field, which had become rank with comfrey.

SNOW-BUNTING (*Plectrophenax n. nivalis*).—A very fine flock of some 200 birds was seen by Wagstaffe on the sea wall at Hundred End, Ribble Estuary, towards the evening of February 18th, 1929. A strong east wind was blowing at the time, and the birds found it difficult to avoid being blown over the saltings and away from the sheltered sea wall.

MEADOW-PIPIT (*Anthus pratensis*).—Spring passage was observed in 1928 along the Ribble Estuary, and at Ainsdale from March 19th to April 1st. Of late years the Meadow-Pipit as a nesting species on the dunes, has become rare or possibly absent. We have not seen a nest within the Ternery since 1921.

ROCK-PIPIT (*A. spinoletta petrosus*).—A casual vistor to the low-lying coast. One was seen and heard by Miss A. G. Langdon on the Ainsdale dunes on October 14th, 1928.

WHITE WAGTAIL (*Motacilla a. alba*).—Arrivals noted on Ainsdale shore on April 15th, 1928, and the birds were unusually numerous in the same place on April 22nd. Returned birds were observed in Hesketh Park on September 6th.

NUTHATCH (*Sitta europæa affinis*).—One seen near the Shooting Box, Martin Mere, July 14th, 1928. We have yet to view the nest near Southport.

RING-OUZEL (*Turdus t. torquatus*).—A pair on the Freshfield dunes on May 13th, 1928.

LITTLE OWL (*Athene noctua vidalii*).—One was shot on Martin Mere on January 15th, 1929.

PEREGRINE FALCON (*Falco p. peregrinus*).—One seen in ›ursuit of Teal at Ainsdale on February 29th, 1928, while one ıad returned to the Ribble Estuary on August 1st. A female n very poor plumage attracted much attention in Southport or several weeks in December to early January, 1929. Its avourite perch was upon the weather vane of St. George's Church in Lord Street.

GREY LAG-GOOSE (*Anser anser*).—A Grey Lag, badly oiled n the breast, occurred in the outer slack of the Freshfield lunes on March 11th, 1928. Three out of a skein of four birds vere shot by different fowlers at Banks on February 12th, 1929.

WHITE-FRONTED GOOSE (*Anser albifrons*).—R. Ball obtained ne from a skein of seven geese at Marshside on December 6th, 927.

BEAN-GOOSE (*Anser f. fabalis*).—One flying alone was shot t Hundred End on February 26th, 1929, by D. Openshaw.

PINK-FOOTED GOOSE (*Anser brachyrhynchus*).—Three birds hot on Martin Mere on January 16th, 1928, weighed 5, 6½ nd 7½ lbs. The last-named had a narrow band of white eathers round the beak. Autumnal arrivals were observed n September 23rd, 1928, and on November 29th it was estiıated that some two thousand Geese were on the Ribble stuary. The weights of three Pink-footed Geese shot on ebruary 15th, 1929, during the severe frost were 5, 5½ and lbs. respectively. Potatoes appear to be the staple food of his Goose while present on Martin Mere.

BRENT GOOSE (*Branta b. bernicla*).—A fine skein of about ree hundred Brents was observed by Wagstaffe on February 8th, 1929, at Hundred End. Several birds were shot during ie frosty spell. The gizzard of an adult male obtained on ebruary 19th contained the young leaf blades of the Sea ink (*Statice maritima*). Two birds shot in February belong the dark-breasted race.

SHELD-DUCK (*Tadorna tadorna*).—During the last ten years e believe that the number of Sheld-Ducks on the south ıncashire coast has decreased by 50 per cent. Flocks of tween 200 and 300 birds were of normal occurrence on the ossens Pool up to 1918, while assemblages of 70 were not ıusual at that time in the dunes in summer. In more recent ars, a flock of between 20 and 30 birds in the hills has been ie rule. For many years "dropped eggs" of this species ıve been frequent, which, in many cases, may point to a ıortage of nesting sites. The extensive afforestation of e dunes has, apparently, aggravated the position. As yet

the young pines, of themselves, are not a factor in the matter, but as an intensive campaign against the rabbits has been waged to prevent the "barking" of the trees, many burrows are now untenanted. The larger burrows are often destroyed by trappers, and this, together with the action of wind and rain, and the absence of new excavations, has appreciably lessened the number of burrows suitable for the purpose of the Sheld-Duck. Nesting quarters at Ainsdale are usually abandoned by mid-July, but on July 29th, 1928, a brood of four in down was found in a steep-sided trench, into which the ducklings had evidently fallen and were unable to make their escape. The old drake was much more demonstrative than the duck. Broods are led away from the dunes a day or so after hatching, and the parents take advantage of the tidal currents to carry their young to the Ribble Estuary, some eight miles distant. We have seen a brood quite unattended, well off shore, but the old birds joined the ducklings when the latter were carried to the flats by the flood. Both parents left as we approached, without demonstration, the brood swimming out in the shallows. On another occasion a duck remained with her young on a choppy sea, while the drake flew restlessly around us. The "flapper" period is spent in the gutters of the off-shore sandbanks, and occasionally the birds are driven on shore by heavy tides. The young at the age of about three weeks dive well.

MALLARD (*Anas p. platyrhyncha*).—On May 6th, 1928, an object was sighted from a distance on a dune slope in a quarter where drift-sand is supreme. The object proved to be a Wild Duck, her brood of five being a few yards away. Her attitude, with outstretched neck prone on the sand, was similar to that of a sitting Goose. Although Holder circled round the birds, all remained motionless. Possibly the fact that no water was close by, and that the soft sand on the slope would impede the escape of the ducklings, had an influence on the duck's unusual behaviour. A week later a duck with a similar brood was encountered in the tarn region, and it may have been the bird referred to above. On this occasion she acted in the normal "broken-wing" style. A fence of wire netting interrupted her progress, but she flew over this obstacle to resume her antics. Most ringers of birds have a wide experience with regard to the parental behaviour of birds, and our field-notes on the subject do not lend support to the "nervous prostration" theory originally expounded by Jonathan Couch.

TEAL (*Anas c. crecca*).—A Teal shot in flight on Martin Mere on December 24th, 1927, was so covered with oil that no plumage colours were visible. It was as black as a Rook. Had the facts not been otherwise we could not have believed the bird to have been capable of flight.

PINTAIL (*Anas a. acuta*).—The contents of the gizzard of a drake, shot on Martin Mere, on January 11th, 1928, were sent to Mr. J. W. Jackson of Manchester Museum, who kindly reported that the molluscs present were that common estuarine species, *Hydrobia ulvæ*, and probably fragments of *Malcoma balthica*.

COMMON POCHARD (*Nyroca f. ferina*).—We do not consider this species to be a common winter visitor near Southport. A drake occurred on the Hesketh Park Lake in February and March, 1929. It may be worth while recording that during the last two years Shoveler and Teal (in October) and Wigeon and Tufted Duck (in February and March) have been present on this Lake, where, doubtless, the semi-wild Mallards have acted as decoys.

TUFTED DUCK (*Nyroca fuligula*).—The frost brought large parties to the Ribble Estuary at Banks in mid-February, 1929.

COMMON SCOTER (*Oidemia n. nigra*).—Very few birds of this species have been observed inshore since the winter of 1927–28, only odd ones being observed. Two Scoters on the Hesketh Park Lake, we believe, were stranded birds brought from the shore.

SMEW (*Mergus albellus*).—A pair flying close inshore were observed at Birkdale on January 22nd, 1928.

LEACH'S FORK-TAILED PETREL (*Oceanodroma l. leucorrhoa*).—One was found alive in the dunes by R. Mawdesley, the watcher at Ainsdale, on December 8th, 1928, after a gale. On dissection the bird proved to be a male.

LITTLE GREBE (*Podiceps r. ruficollis*).—There were three pairs nesting on the Hesketh Park Lake in 1927. The Corporation, however, by cleaning out the Lake, destroyed the natural food of the birds, and although a pair returned in March, 1928, they did not stay to nest.

DOTTEREL (*Charadrius morinellus*).—A trip of seven birds occurred on a field near the village of Churchtown on May 15th, 1928. We have not known the Dotterel to visit this particular ground previously.

RINGED PLOVER (*Charadrius h. hiaticula*).—Returned birds in 1928 occurred at Ainsdale on January 8th and passage-birds were first noted on April 24th. In 1929 the Ringed Plover was very late in reappearing on the dune coast, not

being observed until March 10th. These January to March arrivals are birds which nest on the local coast.

GREY PLOVER (*Squatarola s. squatarola*).—Eighty birds seen on March 25th, 1928, were still in winter plumage. A few individuals were in partial plumage on April 22nd, while on May 6th a large assemblage had birds in all phases from winter to the nuptial dress. Grey Plover not exceptionally occur on the pastures near the sea wall, and their visits to the golf links are by no means rare. In November, a party of seven birds occurred daily for about a week on the Hesketh Links, paying particular attention to a large sand bunker which held a shallow pool.

LAPWING (*Vanellus vanellus*).—A large south-westerly movement was observed on the coast on February 11th, 1928, but on the 18th numerous flocks were noticed travelling at intervals in the reverse direction throughout the day.

SANDERLING (*Crocethia alba*).—Passage birds arrived in quantities on April 22nd, 1928, a fair proportion of them being in moult. We have notes of March immigration for previous years, and in 1929 this again took place. A small flock had remained throughout the period of frost, but on March 24th fully a thousand Sanderlings were in the tidal shallows at Ainsdale, and it is of interest to note that they were in winter plumage.

KNOT (*Calidris c. canutus*).—On the south Lancashire coast it is usually April, sometimes the latter end of the month, before signs of the approaching summer plumage become visible, and, as with the Godwit, only a minority of the birds are affected. Our large winter flocks normally depart in the latter portion of the same month. A flock of 150 Knots in grey dress was at Ainsdale on June 3rd, 1928. August arrivals were normal, while on September 2nd it was impossible to estimate the numbers at Ainsdale.

CURLEW-SANDPIPER (*C. testacea*).—Two at Ainsdale on May 6th, 1928. It is generally conceded that on the actual coast this species is not so frequent as formerly.

REDSHANK (*Tringa t. totanus*).—An early nest with three eggs was found by R. Mawdesley on April 10th, 1928, among the creeping willow at Ainsdale. The *Salix* was not in leaf, and the eggs were conspicuous. Immature birds were abundant on the Ribble Estuary on August 18th, 1928. During the severe weather of February, 1929, Redshanks perished miserably on the same coast, being the only wader so affected by the frost.

GREENSHANK (*Tringa nebularia*).—A bird on the saltings near the Promenade at Southport on May 17th, 1928.

BAR-TAILED GODWIT (*Limosa l. lapponica*).—Quite 600 birds were present in one flock at Ainsdale on February 26th, 1928. Out of 200 seen on March 25th, only two had nuptial feathers on the breast. On April 1st there were 400, and on April 6th, 200, with one individual in the red plumage. Observations over many years confirm the fact that the great majority of winter Godwits leave this coast whilst still in the grey dress. By April 8th the flock had decreased to 50, and to 20 birds on April 22nd. Immature birds had returned to Banks on August 14th and an adult was shot on August 18th. On March 10th, 1929, there were fully 2,000 Godwits at Freshfield, and some 400 birds were present on March 24th.

BLACK-TAILED GODWIT (*Limosa l. limosa*).—One at Ainsdale on January 8th provided our only note for 1928.

WHIMBREL (*Numenius ph. phæopus*).—In 1928 Whimbrel were calling at night over the town on May 21st and September 2nd. A few birds appeared on the Ribble Estuary on August 1st, being last observed at Banks on October 4th.

SANDWICH TERN (*Sterna s. sandvicensis*).—Two birds at Ainsdale on April 22nd were all that were noticed in spring.

COMMON TERN (*S. h. hirundo*).—The first eggs of the Ainsdale Terns were destroyed by the now too abundant Black-headed Gulls. Ainsdale has always been remarkable for the scattered character of the nests, and where the latter occurred close together, the site was often on the tracts of bare driftsand. These barren areas have now been thickly planted with marram, and the Terns have ceased to nest in certain quarters. A Common Tern was at Banks on October 4th, 1928.

ARCTIC TERN (*S. macrura*).—In several summers since bird protection came into force at Ainsdale the Arctics have formed small but distinct colonies in the back hills. During the last two seasons, however, we have not found pairs nesting in this manner. In 1928 odd pairs were scattered over the Ternery, and it has become increasingly difficult to estimate their numbers. We believe, however, that the Arctic has decreased in recent years.

LITTLE TERN (*S. a. albifrons*).—Previous to 1928 we had not met with this species here during its spring passage, but one was seen at Ainsdale on May 6th. There were five at Banks on October 4th—a rather late date.

BLACK-HEADED GULL (*Larus r. ridibundus*).—Although this Gull has been known to breed at Ainsdale for more than half a century, the species had never really obtained a firm footing

prior to 1921. In 1916 only one pair nested, but with the inauguration of bird protection eight years ago, they thoroughly established themselves, and, as at Ravenglass, they are now a menace to the Terns. As often as not, in 1928, the escort of birds consisted of Black-heads, a very striking change to those who were familiar with the Ternery before 1920

COMMON GULL (*L. c. canus*).—Adults are usually still numerous on this coast in the latter half of March, and, as a species, this Gull certainly appears to assume the nuptial head-feathers much later than the others. Only a few have lost the head-streaks when the winter flocks leave our coast. An adult bird had assumed winter plumage by August 4th, 1928.

HERRING-GULL (*Larus a. argentatus*).—A remarkable "wreck" of Starfish (*Asterias rubens*) along the coast in mid-January, 1928, brought extraordinary numbers of Herring-Gulls, Black-heads and Common Gulls to the dune coast and the mouth of the Ribble Estuary.

SCANDINAVIAN LESSER BLACK-BACKED GULL (*Larus f. fuscus*).—Solitary birds were observed on November 13th, 1927, and February 12th, 1928.

BRITISH LESSER BLACK-BACKED GULL (*Larus f. affinis*).—The spring passage of adults extended from March 25th to May 17th, 1928, the largest number being observed on April 1st. There were a dozen birds at Banks on November 27th.

GREAT BLACK-BACKED GULL (*Larus marinus*).—Winter birds were common on the coast up to February 27th, 1928. The latter half of that month seems to be the normal period for departure of the adults, although individuals are to be seen later on passage.

GREAT SKUA (*Stercorarius s. skua*).—One was observed at Banks on August 1st, 1928, pulling out the entrails of a dead Herring-Gull.

ARCTIC SKUA (*Stercorarius parasiticus*).—An Arctic Skua harried the Terns on the Ribble Estuary from August 1st to 9th, 1928.

RAZORBILL (*Alca torda*).—Of the Auks, the Guillemot is the species which is washed up on the dune coast in the largest numbers. However, on February 12th, 1928, many Razor-bills both living and dead, came ashore at Ainsdale, while the Guillemot was absent. These were not oil-clogged birds, for several, found alive in the dune slacks, were in beautiful condition.

LITTLE AUK (*Alle alle*).—One was seen battling against a strong east wind at Banks on November 27th, 1928.

COOT (*Fulica a. atra*).—Very common on the Ribble Estuary during the frost of February, 1929.

MANX ORNITHOLOGICAL NOTES, 1928.

BY

P. G. RALFE.

IN spring a large migratory movement was reported at the Point of Ayre Light in the latter half of February by Mr. J. B. Henderson, the species being mainly Redwing (*Turdus musicus*), Blackbird (*T. merula*) and Starling (*Sturnus vulgaris*). The weather was cloudy, mostly with light S.E. wind. Again from March 15th to 24th, with wind from the same direction, the same species, with Fieldfares (*T. pilaris*) and Curlews (*Numenius arquata*) appeared in great numbers, 180 birds being killed at this Light during this latter period.

From October 8th to 19th, 69 birds were killed at the Point of Ayre, and the movement continued during the early days of November. The species were again chiefly Redwing, Blackbird and Starling.

During the early spring of 1928, as in November and December, 1927, large flocks of Lapwing (*Vanellus vanellus*) with smaller numbers of Golden Plover (*Charadrius apricarius*) were much in evidence.

The earliest Wheatear (*Œnanthe œ. œnanthe*) is reported March 18th (F. S. Graves); Chiffchaff (*Phylloscopus c. collybita*) March 25th (F. S. Graves); Sand-Martin (*Riparia r. riparia*) March 31st (Col. Madoc); Swallow (*Hirundo r. rustica*) April 7th (F. S. Graves and P. G. Ralfe); Willow-Warbler (*Ph. t. trochilus*) April 8th (R. Howarth).

Swallows are recorded up to November 15th (Capt. A. W. Boyd and others). Captain A. W. Boyd, who visited the Island from November 1st, to 16th, and furnished a valuable list of the species observed, remarks on the comparative scarcity of the Blue Tit (*Parus c. obscurus*) and Wood-Pigeon (*Columba p. palumbus*).

The occurrences of the three Ducks named below are first records for Man. It is perhaps strange that the Long-tailed Duck and the Eider have never before been observed; the latter has bred in recent years in Wigtownshire.

MISTLE-THRUSH (*Turdus v. viscivorus*).—The erratic nesting of this species, reported in 1926 and 1927 (Vol. XXI., p. 199), has been repeated in 1928. Mr. J. A. Corteen describes four attempts: the first was made on the old site, a beam under the stone-breaker platform at Dhoon quarry. The two nests were blown down, and Mr. Corteen then put up old sheets of galvanized iron to shelter the spot. Again, two nests were

built, now on either end of a pile of railway sleepers close to the electric car-line. As this place was utterly impracticable, the nests were removed, and a nest was then placed on an adjacent thorn-bush, but deserted before being finished. Some days later, two nests appeared at the old site, now protected, on the beam, only a foot from each other. This fourth trial was successful, four eggs being laid and a brood reared.

Not far off, in the ruinous farm-buildings of Thalloo Mitchell, there was a similar pair of nests (there had been one in 1927), perhaps made by birds of the same family.

I saw what was probably a similar case, at the Lhen, Andreas, where in 1928 there was a nest in each of two rafter-holes, close together, in a ruined house, one nest being empty, the other containing a young brood.

Mr. Corteen reports also that in 1927 Mistle-Thrushes nested on a ledge of rock along the Snaefell Mountain Railway, near the Summit Hotel (2,000 feet).

HOOPOE (*Upupa e. epops*).—One was seen on April 27th by Mr. J. K. Gawne on the coast-brows N.E. of Peel. Mr. F. S. Graves is certain of the identification.

BEWICK'S SWAN (*Cygnus b. bewickii*).—On November 25th Mr. F. A. Craine saw four near Ramsey, during a strong N.W. gale.

WHITE-EYED DUCK (*Nyroca n. nyroca*).—In *N.W. Naturalist*, March, 1928, p. 20, Col. Madoc reports an observation of a male seen off Fort Island by Mr. Cornish and himself.

LONG-TAILED DUCK (*Clangula hyemalis*).—Recorded by Captain A. W. Boyd in *British Birds* (Vol. XXII., p. 191) as seen by himself and Col. Madoc at Derbyhaven on several dates in the previous November. On November 23rd an immature female, probably the same bird, was shot at Langness, near by, and given to the Manx Museum by Mr. G. W. Adams.

COMMON EIDER (*Somateria m. mollissima*).—On December 2nd a male was seen by Mr. R. Howarth about 30 yards off the rocks at Peel Castle.

FULMAR (*Fulmarus g. glacialis*).—On December 9th a dead specimen was found at Peel by Mr. R. Howarth, the second Manx record.

REDSHANK (*Tringa t. totanus*).—Indisputable proof of the nesting of this species in Man was first furnished in 1928, when Mr. G. W. Adams found a young brood on wet land near the northern coast.

NOTES

THE SOARING OF THE CHOUGH.

On May 21st, 1929, from 11.30 a.m. to 6 p.m., I observed at close quarters a pair of Choughs (*Pyrrhocorax pyrrhocorax*) at nest on the north Cornish coast. Both parents were feeding nestlings, which were about eight days old. The weather was calm and soft with a cloudless sky.

The Choughs were always in company and approached the nest, built within a cavity, not from the top of the cliff but from well below the nest, which they entered with a rapid and almost perpendicular upward swoop for the last few feet. Visits were paid to the young on an average every thirty minutes. After the young had been fed, the hen brooded them for about five minutes, while the cock emerged and waited for his mate to quit and then accompanied her on the next search for food. Although it is impossible to be sure that both the parents actually fed the young, it was clear that both brought food on each visit.

On one occasion only (about 3 p.m.) the Choughs, on leaving the nest, soared to a great altitude, rising in circles in the manner of Buzzards, and flew far out over the open ocean until they were invisible through the glasses. This was considerably their longest absence, amounting to close on one hour. Subsequently, food continued to be brought from the cliff slopes and fields above, the range appearing to be at least one mile either up or down the coast. B. H. Ryves.

[Ussher (*B. of Ireland*, p. 84) appears to be the only author who refers to this soaring flight.—Eds.]

BREEDING OF SISKIN IN BERKSHIRE.

On May 25th, 1929, Mr. Hubert F. Smith, of White Place, showed Sir John Hanham, of Dean's Court, Wimborne, a nest of a Siskin (*Carduelis spinus*) in Sir F. Milner's garden at Cliveden. The nest was in a rose tree on a pergola, and the hen sitting close, it could be examined quite near and did not fly off. In response to an invitation, Messrs. J. W. Castle and Donald Gunn visited the nest on June 6th. The parents were extraordinarily tame at the nest and could be examined at a distance of a few feet, the young having hatched probably the day before, but there was no indication that they were escapes. T. G. Longstaff.

BREEDING OF SISKIN IN OXFORDSHIRE.

A SOMEWHAT similar instance of the breeding of the Siskin near Headington, Oxford, in 1927, is recorded in the *Report of the Oxford Ornithological Society* for 1927, p. 8. In this case the nest was about 16–18 ft. up in an alder and the adult female Siskin was seen feeding the young. From the description the nest was somewhat abnormal in type. There is no doubt that in this case also the birds were correctly identified, but as in all reported cases of breeding from the south of England, the site is quite abnormal. In Scotland and Ireland the Siskin haunts coniferous woods, usually nesting in spruces and often at a considerable height from the ground. It seems possible that these casual records of breeding in rose pergolas, alders, juniper bushes, etc., are due to escaped birds, as the Siskin is frequently kept in confinement for the purpose of hybridizing with Canaries. It is of course possible that in time it may establish itself as a wild-breeding species in this way, just as certain species of Ducks have done from pinioned birds turned down and allowed to breed. F. C. R. JOURDAIN.

CIRL BUNTING IN CUMBERLAND.

ON June 8th, 1929, I saw a male Cirl Bunting (*Emberiza cirlus*) near Penrith, and two days later saw the female.

Though I could not find the nest, it was obvious from the distress of the birds that they were nesting. Although I can find no previous record of the bird for Cumberland, I have suspected its presence from two separate reports that reached me last year from the place where I saw the birds this year.

H. J. MOON.

GREY WAGTAILS USING SAME NESTS YEARLY.

A PAIR of Grey Wagtails (*Motacilla c. cinerea*) which nest annually in our boat-house in Kent have used the same nests for the past eleven years. There are two nests on the wall-plate of the boat-house, about five feet apart, and they are entirely protected from the weather. Two broods are reared annually, one in each nest, which is tidied up and relined for the purpose. They breed early, generally commencing to sit about April 8th–10th, but in 1928 on April 2nd, and the clutch invariably consists of four eggs. On one occasion, after laying one egg of the second brood in the second nest, the hen laid the rest of her clutch in the first nest. I placed the odd egg together with the rest of the clutch.

E. G. B. MEADE-WALDO.

EARLY NESTING OF NUTHATCH.

On March 21st, 1929, I saw a Nuthatch (*Sitta eu. affinis*) in west Sussex at work on its nesting-hole. By the 23rd the large nesting cavity, in a decayed branch, had been mudded up and the bird was busy on the inside and outside of the hole. On April 19th the eight eggs were taken, six being slightly incubated and two infertile. The first egg, therefore, must have been laid about the first week of April. A few days after robbing, the nest-hole was re-mudded and young were being fed during the latter half of May.

RAYMOND CARLYON BRITTON.

WAXWINGS IN MIDDLESEX IN APRIL.

Mr. P. W. Cheese tells me that on April 9th, 1929, he watched two Waxwings (*Bombycilla garrulus*) close to Ruislip Reservoir (Middlesex). Though this species has on several occasions been observed in this district during the winter months—including a party of five on Harrow Weald Common as recently as November, 1927—I can find no previous April record, either for the district or the county.

T. H. HARRISSON.

SONG-THRUSH LAYING IN DISUSED BLACKBIRD'S NEST.

In 1929 a Blackbird (*Turdus m. merula*) built a nest in a laurel shrub in my garden at Barrowford, Lancs., and completed it about April 2nd; she then forsook it for some unknown cause. Later it was taken over by a Song-Thrush (*T. ph. clarkei*) without any alteration, even the lining of grasses being allowed to remain. She has now (May 23rd) a family of four young ones about five days old.

D. F. JOPSON.

REDWING FEEDING ON BUDS OF ELM FLOWERS.

During the spring of 1929, when the elm trees in Cambridge were just coming into flower, I observed a Redwing (*Turdus musicus*) perched on the top branches of a tree and pecking at the flowers, the buds of which it was scattering on the ground. The bird was apparently very alarmed, and kept turning its head from side to side with quick jerks; it flew from tree to tree, behaving in the same way in each, and feeding in hurried snatches. Finally, it flew down to the lawn of St. John's College and searched for food in the ordinary manner. While doing so, and from the moment when it lit upon the grass, it showed no signs of alarm. H. M. RAIT KERR.

MIMICRY OF NIGHTINGALE'S NOTES BY SONG-THRUSH.

It has, I believe, been suggested by some observers that the Song-Thrush (*Turdus philomelus*) mimics the notes of other birds, and among them the long drawn-out piping note of the Nightingale (*Luscinia megarhyncha*).

It is perhaps worth recording that in Ireland, where the Nightingale is unknown, many Song-Thrushes have frequently been heard by myself and others to utter these notes, both at the beginning of their spell of song, and during and after certain phrases. H. RAIT KERR.

[I doubt very much whether the notes of the Song-Thrush referred to above can possibly be classed as mimicry. One hears them in parts of England also where the Nightingale is unknown as in Ireland.—F.C.R.J.]

SWALLOWS RINGED IN CHESHIRE AND CARMARTHENSHIRE FOUND IN NATAL AND CAPE PROVINCE.

SOME months ago news reached me of two of our ringed Swallows (*Hirundo r. rustica*) from South Africa. By the courtesy of Mr. E. Warren of the Natal Museum, Pietermaritzburg, Mr. Edward Marriott of Creighton, Natal, and Mr. S. J. Smith of Hofmeyr, Cape Province, I have now received full and satisfactory particulars of these occurrences.

The first is of a Swallow ringed as a nestling (ST.565) by Mr. A. W. Boyd at Frandley, Great Budworth, Cheshire, on June 13th, 1927. This bird was found dead on Mr. F. C. Harman's farm at Craddock, near Creighton, Natal, on January 3rd, 1929, and was reported by Mr. E. Marriott through Mr. E. Warren.

At the same time Mr. Marriott drew attention to a report by Mr. S. J. Smith in the *Johannesburg Sunday Times* of another ringed Swallow. This proved to be number SS.303, ringed as a nestling by Mr. J. F. Thomas at Laugharne, Carmarthenshire, on July 30th, 1927. It was found exhausted on Biesjesbult Farm, Hofmeyr (Cradock), Cape Province, on January 28th, 1929. Mr. S. J. Smith, who reported this Swallow and kindly sent me particulars, states that despite every effort to revive it the bird died. Dissection revealed no disease or injury and it was thought that the bird was overcome by the great heat prevailing at the time.

These two cases are the eighth and ninth Swallows ringed

under our scheme to be reported from South Africa. It is interesting to note that like all the other seven they were found in the eastern half of South Africa. (See Vol. XVI., pp. 81–3 (map) and 284–5). A further point of considerable interest is the fact that No. SS.303 is the second Swallow ringed by Mr. J. F. Thomas at Laugharne which has been found in South Africa. The first was ringed in 1922 and recovered on January 14th, 1923 (see Vol. XVI., pp. 284–5), near Johannesburg, approximately 400 miles N.N.E. of Hofmeyr, where the second has now been reported.

We are greatly indebted to Messrs. Warren, Marriott and Smith for having notified these occurrences and to the first-named for having explained the objects of the ringing scheme in the local press. H. F. WITHERBY.

REMARKABLE PELLET OF TAWNY OWL.

THE photograph here reproduced represents a disgorged pellet of a Tawny Owl (*Strix a. sylvatica*) which was picked up at Keswick, Norwich, under a scots pine much used by Tawny Owls, and under which their pellets are often found. This remarkable pellet contains a perfect skull and beak of the

Common Snipe (*Capella gallinago*). It seems almost incredible that the Owl could have swallowed the Snipe's head and beak without injury to itself, or without getting its throat perforated by the long bill. It presumably swallowed it the wrong way of the feathers. It must be of very rare occurrence for a Tawny Owl to catch a Snipe at all, and probably it was

caught on the ground on an adjacent meadow and carried to the tree to be eaten. The total length of the pellet from the tip of the beak to the base of the skull measures just under four inches, a truly formidable mouthful for the Owl to tackle. Round the base of the beak and part of the skull of the Snipe is a mass of disgorged feathers and minute bones, as is found in an ordinary pellet. GERARD H. GURNEY.

HOBBY AND SWIFT.

ON May 30th, 1929, A. R. Morrison, one of the boys of Malvern College, noticed a bird flying with difficulty and obviously in trouble of some sort; after a vain attempt to remain in the air it was forced to land in a garden and the boy caught it. He found that a Swift (*Apus a. apus*) had got its claws firmly fixed in the Hawk's thigh-feathers, and the feathers of the Swift's shoulder were as firmly intertwined with the Hawk's cheek-feathers; this apparently pulled the Hawk's head down to such an extent that he could not keep the air. The boy separated the two birds with some difficulty and brought them both to me; I ringed and released them, and they flew off, apparently none the worse for their adventure. The Hawk was an adult male Hobby (*Falco subbuteo*). I imagine that the Hobby had captured the Swift on the wing, but thought it might be possible that the latter was mobbing his enemy, and had struck home rather more closely than he intended. P. E. A. MORSHEAD.

LARGE CLUTCH OF MONTAGU'S HARRIER AND INCUBATION BY COCK BIRD.

THE photograph annexed, which was taken in Norfolk by Lord Hyde, shows the nest of a Montagu's Harrier (*Circus pygargus*) containing a clutch of eight eggs. I found the nest on May 15th, 1929, when it held four eggs, one of which appeared by its freshness to have been laid that morning. On the 20th there were six eggs and on the 27th I found that there were eight. Four or five eggs is the average clutch and one of six is rare. From observations on this nest I have no reason to suspect that a second female laid any of the eggs; I feel sure that no one had added any from another nest, and that the eight are all the product of one hen.

On June 4th I flushed a male Harrier, at a distance of four yards, from a second nest of five eggs, which had contained three on May 27th. The eggs were warm and there can be no doubt that the male had been sitting on them. In thirty

years' watching and an experience ranging over quite a hundred nests of this species, this is the first time I have

ever seen the male Harrier at a nest with eggs. The male and female have since been photographed at the nest together.

J. VINCENT.

MALLARD LAYING IN OLD CROW'S NEST.

ON April 5th, 1929, near Pool Quay, Montgomeryshire, I found a Mallard (*Anas p. platyrhyncha*) sitting in the nest of a Carrion-Crow (*Corvus c. corone*) of the previous year. On the 16th I climbed to the nest, which was about thirty feet from the ground in the fork of a branch some distance from the main stem, and took the annexed photograph. An examination of the eggs at the end of the month proved that eleven were addled and three contained dead young ones. The severe frosts and cold and the very open and exposed position of the nest were probably responsible for this.

Once previously I have found a Mallard's nest in a similar situation, but in this case the nest had firstly been a Ring-Dove's and then had been much enlarged by a squirrel. This was in a spruce nearly fifty feet from the ground and eight young were safely brought off. J. H. OWEN.

[The occasional nesting of the Mallard in trees at some height from the ground is of course well known and has been frequently reported, but Mr. Owen's two nests appear to have been situated at unusual heights. We have found a Mallard breeding in an old nest of a Hooded Crow at thirty feet from the ground in Hungary.—EDS.]

HERON AND MAGPIE NESTING IN SAME TREE.

ON May 16th, 1929, I found a Heron (*Ardea cinerea*) and a Magpie (*Pica p. pica*) nesting together at the top of a tall beech in Savernake Forest. The Magpie's nest, containing eggs which hatched shortly afterwards, was built on to a disused Heron's nest, only ten feet from an occupied one,

The Heron's nest held three fledglings, which flew off on to adjacent branches at my approach. They were still on the nest two or three days later. As far as I could tell the two species were on the best of terms. W. D. SHAW.

GREAT CRESTED GREBES AT SEA DURING SEVERE COLD.

ON March 3rd, 1929, I travelled from Ostend to Dover. The ponds and streams in Belgium were coated with thick ice and the inner part of Ostend harbour was also frozen. Off the coast, which was left about half-past ten, there was a certain amount of floating ice, but the usual birds were seen and nothing was noted beyond the abundance of Common Scoters (*Oidemia n. nigra*). There were well over a thousand within two or three miles of the shore and half a mile of the ship's course.

It was surprising, however, at 11.45 a.m. to recognise a Great Crested Grebe (*Podiceps c. cristatus*) and a minute or two later five more were passed. Almost immediately, then, the ship entered an area over which many birds were widely scattered, and among these Great Crested Grebes predominated. They rose with difficulty at 200 to 300 yards from the ship, flew a short way, descended and dived, only to reappear again after a few seconds. They seemed unable to remain for any length of time in the air or under water, suggesting weakness.

The birds fled from the steamer as fast as they could, but some thirty Great Crested Grebes were identified, also (in all probability) a Red-throated Diver (*Colymbus stellatus*) and a splendid Great Northern Diver (*Colymbus immer*) showing clearly the square, white spots on its back. All of these were on one side of the ship and there is no reason to think that there was not an equal number on the other side. They were all seen within a few minutes after 11.50 a.m., and at 12.05 p.m. the ship passed close to the Ruytingen Light Vessel, fixing with certainty where they were. The position of the light ship is stated in the Admiralty Light List as 51° 15′ North, 2° 14′ East. This is between 12½ and 13 miles (sea miles of 6,080 feet) from the nearest part of the French coast, just west of Dunkirk, and about 31 miles from Deal, the closest point in England. The birds were probably within three, certainly within five, miles of the light vessel and to the east of her or a little to the north of that direction. The general depth there, as shown on Admiralty Chart 1406,

is nine fathoms or more, with one spot of $4\frac{3}{4}$ fathoms on the estimated course and others of $3\frac{3}{4}$ and $2\frac{1}{2}$ fathoms half a mile to the north and a mile to the south of it respectively. This must be far deeper water than Great Crested Grebes usually frequent.

In repeated journeys across the southern part of the North Sea at all times of year I have never before observed Great Crested Grebes away from land. The cold alone is hardly a complete explanation of their presence so far out. With inland and enclosed coastal waters ice-bound, the birds would normally be along the unprotected shore, but difficulty in obtaining sufficient or suitable food there would be inferred as the probable reason for them to put to sea. The presence of Divers with the Grebes suggests that food was what attracted them to the place where they were observed. T. H. McKittrick, Junr.

OYSTER-CATCHER AND LITTLE TERN NESTING IN ESSEX.

On June 29th, 1929, I discovered the nest of an Oyster-catcher (*Hæmatopus o. ostralegus*), with three eggs, on the stretch of coast between the Colne and the Stour. It was situated on a shingle bank and lined with white shells, and the bird was seen to rise from the eggs. Mr. W. E. Glegg, in his *History of the Birds of Essex*, states that although it was at one time a not uncommon bird on the Essex coast, he had not been able to obtain definite evidence of nesting since the year 1889. He inclines to the view that breeding took place in the county in 1926 and 1927, as he saw a pair of birds in June of each year, at another locality on the coast.

On the same shingle bank I found a small colony of the Little Tern (*Sterna a. albifrons*). Two nests with eggs were seen, and I estimated from the birds in the air that seven or eight breeding pairs were present. This colony is an addition to the five already known, and it seems probable that the birds have arrived from another locality some distance away, which has recently suffered much disturbance.

C. L. Collenette.

THREE REDSHANKS AT ONE NEST.

On May 22nd, 1929, I was engaged in photographing a Redshank (*Tringa t. totanus*) nesting near Oxford. After I had been in the hide for twenty minutes the bird returned and proceeded to sit. After about five minutes she began

uttering a short, low, bubbling call. This was answered by her mate, who came over and stood above the nest, looking in at her and continuing to call. In less than a minute the call was taken up by a third Redshank, which also came up and joined the second. Both birds stood by the sitting bird and looked in at her. They seemed on perfectly amicable terms, and stayed within a foot of one another for at least two minutes. They then departed in rapid succession, and perhaps a little hurriedly, but still with no sign of an actual fight, though one uttered what might be called a shriek on taking wing. The third bird seemed to be one of a pair probably nesting on the far side of the neighbouring river.

W. A. S. LEWIS.

IMMIGRATION OF CROSSBILLS.—The following reports, which have reached us, of the appearance of Crossbills (*Loxia c. curvirostra*) in widely separated localities indicate that an immigration on a large scale is probably taking place.

SHETLAND.—Mr. C. Oldham, writing on July 15th, states that he has seen Crossbills in several places on the cliffs and feeding on thrift.

NORTHUMBERLAND.—Mr. C. Noble Rollin reports a flock of about fifty in south-west Northumberland on July 6th. Some were adults and some streaked young, but most appeared intermediate.

YORKSHIRE.—Mr. W. S. Medlicott saw some at Goathland on July 15th.

BEDFORDSHIRE.—Mr. D. Seth-Smith writes of a considerable party at Whipsnade on July 19th.

ESSEX.—Mr. R. E. J. Edwards informs us that a party of seven was seen at Hutton, near Brentwood, on July 23rd.

KENT.—Mr. Collingwood Ingram reports two small parties at Benenden on July 11th.

HEREFORDSHIRE.—Mr. H. A. Gilbert saw a flock of a dozen at Bishopstone on July 13th.

DENBIGHSHIRE.—Mr. W. V. Wenner states that a flock of seventeen (most in red plumage) arrived at Garthmeilio on July 7th, this being their first appearance there since April, 1928.

LATE REDWING IN PEMBROKESHIRE.—Mr. R. M. Lockley writes that he put up a Redwing (*Turdus musicus*) from some potatoes on the island of Skokholm on June 13th, 1929, and saw it again several times during the same day.

RARE VISITORS TO FAIR ISLE.—Surgeon Rear-Admiral J. H. Stenhouse records (*Scot. Nat.*, 1929, p. 9) the following as occurring at Fair Isle in the autumn of 1928 :—

GREENLAND REDPOLL (*Carduelis l. rostrata*).—Two on September 19th.

LANCEOLATED WARBLER (*Locustella lanceolata*).—A female on September 22nd.

BLYTH'S REED-WARBLER (*Acrocephalus dumetorum*).—One on September 24th.

SIBERIAN LESSER WHITETHROAT (*Sylvia c. affinis*).—One on September 22nd and another on the 28th.

ICELAND REDWING (*Turdus m. coburni*).—One of a few Redwings arriving on October 1st proved to be of this form.

EARLY RETURN OF WHIMBREL IN AYRSHIRE.—Mr. E. Richmond Paton informs us that he heard and saw a Whimbrel (*Numenius phœopus*) passing south-west at Hareshawmuir on July 6th, 1929. He points out that the earliest date given in the *Practical Handbook* for a returning migrant is July 7th (Suffolk), but a few non-breeding birds stay here and there (e.g. Hyskeir) in summer.

LETTERS.

FULMAR STANDING ON ITS TOES.

To the Editors of BRITISH BIRDS.

SIRS,—I am able to confirm to some extent, and in one respect to amplify, Mr. Rollin's interesting observations on the Fulmar Petrel (*antea*, pp. 31–3). At five o'clock on the afternoon of July 14th, when I was scanning with a telescope the nesting Herring-Gulls and Fulmars on a cliff in Shetland, a Fulmar that was sitting in a niche rose upon its toes and disclosed a downy chick crouching between its raised tarsi. The old bird maintained this standing posture on the toes of both feet (its tarsi making with the toes an angle of approximately 100°) for some five minutes, then resumed its former prone position, and so remained until I left the place half-an-hour afterwards. Whilst it was standing, the Fulmar moved its mandibles with a rapid nibbling motion, part, I suppose, of a process of regurgitation, as it then gaped slightly, and the young one, thrusting its bill well within its mouth, appeared to obtain some food. This performance was repeated half a dozen times before the old bird settled down again to brood the chick.

CHAS. OLDHAM.

WHY KILL LITTLE BITTERNS?

To the Editors of BRITISH BIRDS.

SIRS,—Mr. R. Charlton records (*antea*, p. 39) how, on May 7th, 1929, a keeper in Flintshire, seeing "a bird he did not recognize"—shot it. It proved to be a female Little Bittern. Is not this a misfortune to British ornithology? The bird reaches S. Europe from Africa in "flushes," intending to breed, and would probably breed with us if permitted, and should be strictly protected, not shot at sight.

READING, *July 3rd*, 1929. H. M. WALLIS.

[We quite agree, but many owners of property are unable, or unwilling to control the actions of their keepers, and are often ignorant of what they kill, especially in the close season.—EDS.]

REVIEWS

The Birds of Ayrshire. By E. Richmond Paton and Oliver G. Pike. With 25 plates, text-figures and map. (H. F. & G. Witherby.) 21s. net.

THE county of Ayr, the authors tell is, is "one of the finest and most picturesque in the whole of the British Isles," and a few illustrations to show the different types of country found within its boundaries would have added much to the interest of the book and might well have replaced photographs of such birds as the Blue Tits and Black-headed Gulls. Nor is this lack of illustration made up by an adequate description of the general features of the county; so brief indeed are the authors' remarks on this subject that we are unable to gain much idea of the topography of the area dealt with, and this, we think, is a serious omission.

Ayrshire has not produced in the past any ornithologist of note, omitting of course Alexander Wilson, who did not develop his love for birds, or rather perhaps did not write about them, till after he went to America, but, nevertheless, the authors have been fortunate in having Gray and Anderson's well-known paper on the *Birds of Ayrshire and Wigtownshire* and the former's *Birds of the West of Scotland* as a basis for their work.

Two hundred and thirty-five birds are recorded for the county, and nineteen of these being doubtful, or requiring more information, are for the present kept within square brackets.

The Jay is still a very local bird in Scotland, and though it has long been known from various parts of Dumfriesshire it is only since the war that this bird has spread into Kirkcudbrightshire, but apparently there has not been any corresponding increase northwards into Ayrshire. We are sorry to learn that the Chough is now reduced to two or three breeding pairs within the county; further south on the Solway we have heard rumours, unconfirmed as yet, of a more favourable state of affairs.

The fluctuations of different species are difficult to explain: the Goldfinch is increasing in certain parts of Ayrshire, while the Twite and the Corn-Bunting are decreasing. The Ring-Ouzel is also much less common than formerly, as is the case in two, at least, of the neighbouring counties, though in Perthshire, for instance, there appears to be no diminution. The cutting down of woods during the war is suggested by the authors as a cause of the decrease of the Bullfinch; surely this bird haunts hedgerows, thickets and young woods rather than those of a mature age?

The Red-breasted Merganser is now increasing as a breeding bird, likewise the Tufted Duck, and the Pochard has nested at least once within the county, but there are no records as yet of the Shoveler or Wigeon remaining to breed. Strangely enough, fewer Cormorants are said to nest within the county than formerly and the interesting breeding-haunt on Loch Moan is only tenanted by a single pair. As in other parts of Scotland, the Great Crested Grebe is increasing and has bred regularly in Ayrshire since 1916. In regard to the Lapwing, we are interested to learn that though this bird has decreased in most

districts it has actually increased round Girvan, Loch Doon and at Barrhill, while in the Dunure district there is no change in its status.

Apparently the authors are unaware that the Capercaillie was introduced into Ayrshire and that there is an alleged occurrence of this bird at Old Cumnock in 1877. (*Capercaillie in Scotland*, Harvie—Brown, 1879.)

Ptarmigan formerly nested in the higher hills of south-west Scotland, and a full account with probable date of extinction was given by Robert Service in the *Zoologist* for 1881 (pp. 81–9). Certainly the Duke of Buccleuch never tried to reintroduce this species on the Kirkcudbrightshire hills! A reference to Mr. Gladstone's *Birds of Dumfriesshire*, which, by the way, is not once mentioned, would have put the authors right on that point.

The work contains much of interest but does not appear to us to be sufficiently thorough to gain a place as an authoritative account of the birds of the County. The authors do not appear to have exhausted the literature bearing on the subject and the few works and journals mentioned in the preface are only a small part of those which it was necessary to consult.—N.B.K.

Ornitologia Italiana. By Dott. Ettore Arrigoni degli Oddi. pp. CLI and 1046, with 586 text figures and 36 coloured plates. 10½ × 7½ in. (Milan: U. Hoepli). 1929.

Dr. Arrigoni, the veteran Italian ornithologist, is to be heartily congratulated on producing this fine, up-to-date book, which makes an excellent standard work on the birds of his country. Besides the mainland of Italy, the islands of Sicily and Corsica, as well as Sardinia and Malta are included. In the text of the work 518 forms are included. The scientific nomenclature and treatment are modern, and French, German and English names are given as well as the Italian and local equivalents. A brief description follows and useful distinguishing characters are added. A section on distribution is given to each species, and in this the Italian status is worked out with care, though much more observation is necessary before the distribution of birds in Italy can be considered to be adequately known. Information on song, breeding and other habits, and food, is usually given in paragraphs after each genus, a system which does not give the exact results achieved by treating each bird entirely separately. It is rather surprising to find in a book devoted to Italian birds a long illustrated account (under Guillemot) of the Yorkshire cliff-climbing, which the author witnessed during the International Ornithological Congress of 1905.

The whole work is illustrated by numerous text-figures, some from wash drawings or photographs, but most in the style of those in our *Practical Handbook* (in a few cases rather unnecessarily like them).

At the end of the book are a number of coloured plates, in which the birds are badly drawn and coarsely coloured, and mostly inaccurate in detail, but usually recognizable.

A useful section in the book is a very long and full bibliography, while at the end will be found an annotated list of unaccepted species. a systematic list and other useful matter, as well as a very full index,

It is much to be hoped that with this excellent work as a standard Italian ornithologists will rise up and forge ahead in the future.

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THE MIGRATIONS OF BRITISH AND IRISH WOODCOCK: RESULTS OF THE MARKING METHOD.

BY

A. LANDSBOROUGH THOMSON, O.B.E., D.SC.

I.—Introduction.

The migrations of the Woodcock (*Scolopax rusticola*) in Europe have been discussed by Schenk in a voluminous paper (1924), of which an abstract in English appeared in these pages (1925). This reviewed the available data resulting both from observational studies and from marking; it also discussed at length various theoretical questions which consideration of the facts suggested. It is not the purpose of the present paper to traverse all the ground thus covered by Schenk, but only to present a fuller account of the data derived from the marking method which relate to the British Isles. Schenk's paper, in its original form, gave a list of most of the marking records for the Woodcock then available, but dealt chiefly with the interest of the individual cases which showed considerable movement; a comprehensive review of all the data from this source, of which data from the British Isles form much the larger part, was thus still required.

In the case of the Woodcock there are not only the records obtained by the "British Birds" and former Aberdeen University marking schemes, but many records from private marking schemes which the owners of various estates have undertaken. Two of these schemes have contributed important series of records, and, as these have fortunately been published in detail, summaries of the results are included below. The other private schemes have either produced fewer records, or these have not been fully published; no attempt is made here to deal with most of these, beyond making mention of the existence of the schemes and of any striking individual records known to have been obtained.

In view of the fact that the conditions of the private schemes are not entirely comparable with those of the two larger inquiries, and that the results are not available in quite the same form, the various series of records have been kept apart, only those of the "British Birds" and Aberdeen University schemes being combined. The private schemes differ, as a rule, in that the rings used bear less adequate addresses and year marks instead of individual numbers; they also yield a high proportion of local recoveries, a point to which further reference will be made later.

The writer is indebted to Mr. H. F. Witherby, who indeed suggested this paper, for access to the "British Birds" records and for information about some of the private schemes. He is also indebted to Captain S. R. Douglas, F.R.S., for having prepared and published the second of the papers mentioned below with a view to facilitating reference here, in a more general way, to the whole series of records of the Classiebawn scheme.

II.—Results of the Northumberland Scheme.

This is the earliest known scheme for marking wild birds on any considerable scale with a view to studying their migrations. In 1891 Lord William Percy began marking young Woodcock on the Duke of Northumberland's estate at Alnwick, Northumberland. The rings bore the symbol "N" and the date (year). Table A gives an analysis of the list of records published in 1909, showing 58 recoveries out of a total of about 375 marked.

TABLE A.

Analysis of Recovery Records of Woodcock Marked as Young Birds in Northumberland (Percy).

Month of recovery.	Recovered at or near place of marking.	Recovered elsewhere in northern Great Britain.	Recovered outside general area.
First season.			
September	2	1	—
October	2	—	—
November ...	10	1	1
December ...	5	1	1
January ...	7	—	—
February... ...	—	—	—
March	—	—	1
Subsequent seasons.			
October	1	—	—
November ...	4	—	1
December ...	8	1	2
January ...	5	—	3
February... ...	1	—	—
March	—	—	—
	—	—	—
Total ...	45	4	9

[Notes.—Throughout this paper seasons are reckoned, as usual, from the 1st April in the year of marking.
"At or near place of marking" means in Northumberland. For purposes of comparison with subsequent series of records, the general area is taken as being Scotland and the north of England.]

The records of the individual birds recovered otherwise than at or near the place of marking are shown in detail in a supplementary table (AA). In the case of recovery localities within the general area the distance is added in parenthesis.

TABLE AA.

PARTICULARS OF WOODCOCK MARKED AS YOUNG BIRDS IN NORTHUMBERLAND AND RECOVERED AT A DISTANCE.

(*Details of Table A, Columns* 3 *and* 4).

Year of marking at Alnwick.		Date and Place of Recovery.	
1906	...	Sept., 1906	Mid-Lothian, Scotland (55 miles).
1903	...	Nov., 1903	Angus*, Scotland (*ca.* 95 miles).
1903	...	Nov., 1903	Somerset.
1897	...	Dec., 1897	Co. Wexford, Ireland.
1908	...	Dec., 1908	Argyllshire, Scotland (*ca.* 140 miles).
1903	...	Mar., 1903	Co. Cork, Ireland.
1905	...	Nov., 1906	Co. Limerick, Ireland.
1905	...	Dec., 1906	Co. Antrim, Ireland.
1901	...	Dec., 1903	Wigtownshire, Scotland (*ca.* 120 miles).
1905	...	Dec., 1907	Côtes-du-Nord, France.
1894	...	Jan., 1897	Suffolk.
1903	...	Jan., 1907	Co. Cork, Ireland.
1904	...	Jan., 1908	Co. Cork, Ireland.

III.—RESULTS OF THE CLASSIEBAWN, SLIGO, SCHEME.

In 1910 Colonel W. W. Ashley began marking young Woodcock at Classiebawn, co. Sligo, Ireland, and the results have been published by Douglas in two papers (1917, 1929). The rings used in 1910 were marked "AC10," in 1911 "WA Sligo 1911," and in 1912 "WA Sligo 12." In 1913 two rings were used for each bird, one marked "W Ashley" and the other "Sligo 13"; this practice was continued in subsequent years with the necessary change in the date figure. During the nineteen seasons 658 young birds were marked in all. Of these 92 were recorded (one twice), excluding a few doubtful records. The records, as published in detail by Douglas, are analysed in Table B.

TABLE B.

ANALYSIS OF RECOVERY RECORDS OF WOODCOCK MARKED AS YOUNG BIRDS IN CO. SLIGO, IRELAND (DOUGLAS).

Month of Recovery		Recovered at or near place of marking.	Recovered elsewhere in Ireland.	Recovered outside Ireland.
First season.				
November	...	8	1	2
December	...	8	2	—
January ...	...	26	—	—
February...	...	2	—	—

*Formerly known as Forfarshire.

Month of Recovery	Recovered at or near place of marking.	Recovered elsewhere in Ireland.	Recovered outside Ireland.
Subsequent seasons.			
April	2	—	1
May	5	—	1
June	5	—	—
July	3	—	—
August	2	—	—
September ...	1	—	—
October	—	—	—
November ...	2	3	—
December ...	2	—	—
January	15	—	—
February ...	—	—	—
March	2	—	—
	—	—	—
Total ...	83	6	4

The recoveries of the birds represented in columns 3 and 4 are shown in detail in a supplementary table (BB). In the case of recovery localities within the general area the distance is added in parenthesis.

TABLE BB.

PARTICULARS OF WOODCOCK MARKED AS YOUNG IN CO. SLIGO, IRELAND, AND RECOVERED AT A DISTANCE (DOUGLAS).

(*Details of Table B, Columns* 3 *and* 4.)

Year of marking at Classiebawn.	Date and Place of Recovery.	
1914 ...	—.11.14	Vizcaya, N. Spain.
1919 ...	16.11.19	Landes, France.
1918 ...	27.11.18	Co. Fermanagh (31 miles).
1914 ...	—.12.14	Co. Mayo (*ca.* 40 miles).
1917 ...	15.12.17	Co. Antrim (*ca.* 100 miles).
1919 ...	*ca.*20.4.21	Fredrikstad, Norway (50 miles S. of Oslo).
? ...	*ca.*23.5.21	Mid-Lothian, Scotland.
1915 ...	11.11.17	Co. Leitrim (*ca.* 40 miles).
1915 ...	14.11.17	Co. Leitrim (*ca.* 40 miles).
1913 ...	—.11.16	Co. Donegal (*ca.* 60 miles).

Several of the records are of interest from the point of view of longevity. A bird marked in 1910 was recovered within the county at the end of November, 1918. One bird, which appears twice in Table B, was originally marked as a chick in 1911; it was caught, on the estate, as an adult with

[NOTES.—" At or near place of marking " means in co. Sligo or adjacent parts of neighbouring counties, the greatest distance being about 25 miles. Ireland is taken as the general area. Three records undated as to year are included under subsequent seasons. One record dated " summer " is included under July. In one case two records are provided by a single bird.]

young on June 21st, 1915, marked with an extra ring, and released ; it was caught again, still on the estate, on July 11th, 1922. A still longer span of life is recorded in the case of a bird marked as a chick in 1912 and killed by barbed wire on the estate on March 18th, 1924.

IV.—Other Private Schemes.

The following list of other private schemes, and the information given about them, does not pretend to be exhaustive. It will be noted that the first three on the list refer to localities in the same county as Classiebawn, the site of the marking dealt with in the preceding section.

(3) *Temple House, Ballymote, co. Sligo.*—Major A. A. Percival has for several years marked young Woodcock with rings inscribed "T. H. Sligo" and with serial numbers. According to personal information received from him, one of his birds was recovered in co. Wicklow, on the other side of Ireland, and one in Spain, in addition to a number shot locally. One marked at Temple House on May 12th, 1914, was recovered at Shellisatir, Nesting, Shetland, on July 7th, 1917 (*fide* Clarke, 1917–18).

(4) *Hazlewood, co. Sligo.*—It is understood that a number of young Woodcock were marked by Captain P. D. Percival, with rings inscribed "H. W. Sligo," some years ago.

(5) *Lissadell, co. Sligo.*—It is understood that a number were marked by Sir Josslyn Gore-Booth, Bt., mostly with rings inscribed "Lissadell" and with serial numbers. The writer is informed that 78 were marked in the years 1911–18, of which 9 were recovered at the place of marking.

(6) *Baronscourt, co. Tyrone.*—In 1905 the late Lord John Hamilton began marking young Woodcock at Baronscourt, co. Tyrone, Ireland, using rings marked "B.C.05" (and so on according to date) and he has published (1908) the results of marking 211 birds in the four seasons 1905–08. The analysis is as follows, the published data not including the months of recovery :—

	Recovered at home.	Recovered away.
First season	2	1
Second season	6	2
	8	3

The recovery localities of the birds noted in the second column were Inverness-shire, Scotland (October of first year), Cornwall (second year) and Middlesex (second year).

(7) *Cong, co. Galway.*—A number of Woodcock were marked by the late Lord Ardilaun with rings inscribed

"A. Cong" and with the date (year). One marked as a young bird at Cong in 1910 was recovered on December 28th of that year at Covide, forty miles north of Oporto, Portugal (*fide* Witherby, 1911).

(8) *Brookeborough, co. Fermanagh.*—Some Woodcock have been marked since 1924 by Sir Basil Brooke, both as young birds and as trapped adults, with rings inscribed "Brooke" and with serial numbers. The more recent of two published notes (1929) gives particulars of the recoveries to date, ten in all. One young bird was recovered in its first winter fifty miles away in co. Donegal. The others, including two marked as adults, were all recovered locally; one young bird, marked in May, 1926, was caught and released in April, 1927, and finally recovered at the same place on January 2nd, 1928.

(9) *Saynnerton Park, Staffordshire.*—It is understood that some Woodcock have recently been marked by Lord Stafford with private rings, and that a few have been recovered locally.

V.—Results of the "British Birds" and Aberdeen University Schemes.

The records included under this head are those which have so far been obtained under the "British Birds" scheme and those which were obtained during the former Aberdeen University inquiry. Most of the "British Birds" records have already appeared in scattered form in these pages, and some of the earlier ones also in summary form (Witherby, 1910, *et seq*; and 1917). The Aberdeen University records were all included in the present writer's final report on that inquiry (1921), fuller details of some of the cases being given in an earlier publication (1912).

Under the "British Birds" scheme 1,681 Woodcock were marked up to the end of 1928, and 116 have been recovered to the date of writing, or 6.9 per cent.; the number of recoveries is obviously still incomplete. Under the Aberdeen University scheme 156 were marked and 21 recovered, 13.5 per cent.

The data of the two inquiries are so similar in nature, being obtained under strictly comparable conditions and relating to the same geographical area, and it is therefore obviously convenient and useful to analyse them in combined form. With one exception all the birds were marked as young. With five other exceptions they were all marked as young in the geographical area which has on previous occasions been arbitrarily but conveniently defined as Scotland and the North of England (including the six English counties north of the Humber). Table C is therefore restricted to the 131 records which fall in this category, the exceptions being separately mentioned later on.

TABLE C.

ANALYSIS OF RECOVERY RECORDS OF WOODCOCK MARKED AS YOUNG IN SCOTLAND AND THE NORTH OF ENGLAND.

(" *British Birds* " *and Aberdeen University Records.*)

Month of Recovery.	Recovered at or near respective places of marking.	Recovered elsewhere in general area of marking.	Recovered outside general area.
First season.			
August	1	—	—
September ...	12	1	—
October	9	1	1
November ...	12	2	7
December ...	16	—	5
January	8	1	5
February... ...	2	—	4
Subsequent seasons.			
April	1	—	—
May	1	—	—
June	1	—	—
July	1	—	—
August	1	1	—
September ...	—	—	—
October	1	2	—
November ...	8	—	1
December ...	9	—	3
January	7	—	3
February ...	1	—	3
	91	8	32

The records included in columns 3 and 4 of the table deserve to be given in detail. In Table CC those recovered within the general area of marking are distinguished by having the approximate distance added after the recovery locality.

TABLE CC.

PARTICULARS OF WOODCOCK MARKED AS YOUNG IN SCOTLAND AND THE NORTH OF ENGLAND AND RECOVERED AT A DISTANCE.

(*Details of Table C, Columns* 3 *and* 4.)

Ring Number.	Date of Marking.	Place of Marking.	Date of Recovery.	Place of Recovery.
B.B.42029	19.5.13	Dumfries-shire	12.9.13	Moray(*ca.*170miles).
B.B.19440	19.5.13	Cumberland	27.10.13	Northumberland (35 miles).
B.B.12611	15.5.11	Cumberland	31.10.11	Co.Galway, Ireland.
B.B.18404	14.5.12	Cumberland	early 11.12	Co. Kerry, Ireland.
B.B.48061	11.5.14	Dumfries-shire	2.11.14	Co. Clare, Ireland.
B.B. Z.6111	27.4.25	Stirlingshire	10.11.25	Peebles-shire (50 miles).
B.B.16949	28.7.14	Dumfries-shire	13.11.14	Northumberland (55 miles).
A.U.28052	17.6.12	Cumberland	13.11.12	Co. Cork, Ireland.

[NOTE.—The birds included in column 2 of Table C were recovered at or quite near the respective places of marking—within about 30 miles.]

Ring Number.	Date of Marking.	Place of Marking.	Date of Recovery.	Place of Recovery.
B.B.25547	27.4.13	Yorkshire	10.11.13	Landes, France.
A.U.24201 (416)	3.5.12	Stirlingshire	17.11.12	Côtes-du-Nord, France.
B.B.18409	15.5.12	Cumberland	28.11.12	Cornwall.
B.B.17541	1.5.12	Cumberland	29.11.12	Co. Mayo, Ireland.
B.B.12602	11.5.11	Cumberland	26.12.11	Essex.
A.U.24206 (418)	10.5.12	Stirlingshire	*ca.* 26.12.12	Co. Cork, Ireland.
B.B. U.1713	17.5.28	Perthshire	27.12.28	Cornwall.
A.U.28060 (419)	17.6.12	Cumberland	28.12.12	Co. Cork, Ireland.
B.B.16967	8.5.13	Dumfries-shire	30.12.13	Co. Cork, Ireland.
A.U.13475 (292)	13.6.11	Kincardineshire	4.1.12	Asturias, Spain.
B.B. Y.2314	7.5.25	Perthshire	6.1.26	Co. Dublin, Ireland.
B.B.12610	2.5.11	Cumberland	8.1.12	Co. Cork, Ireland.
B.B.12624	21.5.11	Northumberland	12.1.12	Co. Wexford, Ireland.
B.B. Y.5755	30.4.25	Dumfries-shire	28.1.26	Northumberland (*ca.* 35 miles).
B.B.15743	6.5.12	Cumberland	late 1.13	Co. Kerry, Ireland.
B.B. W.7232	10.5.27	Perthshire	7.2.28	Co. Sligo, Ireland.
B.B. Y.3621	–.6.26	Lancashire	16.2.27	Co. Clare, Ireland.
B.B. U.1781	5.5.28	Perthshire	—.2.29	Co. Antrim, Ireland.
B.B. W.1282	20.4.27	Perthshire	20.2.28	Co. Cork, Ireland.
B.B.41806	7.5.13	Wigtownshire	28.8.14	Dumfries-shire (*ca.* 55 miles).
B.B. X.9204	11.6.26	Perthshire	14.10.27	Ayrshire (85 miles).
B.B. Z.1233	2.7.23	Perthshire	17.10.25	Ayrshire (*ca.* 70 miles).
B.B.17301	23.4.14	Kirkcudbrightshire	24.11.15	Co. Down, Ireland.
B.B.Z.1513	21.5.24	Perthshire	1.12.25	Co. Cork, Ireland.
B.B.6952	10.6.26	Perthshire	5.12.28	Co. Cavan, Ireland.
B.B.16931	1.5.12	Dumfries-shire	25.12.15	Co. Antrim, Ireland.
B.B.12613	15.5.11	Cumberland	1.1.13	Co. Kerry, Ireland.
B.B.2881	7.6.18	Kirkcudbrightshire	6.1.20	Co. Westmeath, Ireland.
B.B.16929	1.5.12	Dumfries-shire	30.1.14	Co. Galway, Ireland.
B.B.25358	2.5.12	Dumfries-shire	1.2.15	Co. Tipperary, Ireland.
B.B.12398	22.5.11	Nairnshire	21.2.14	Co. Londonderry, Ireland.
A.U.25276 (426)	26.6.12	Argyllshire	23.2.14	Co. Antrim, Ireland.

A bird recovered in its thirteenth year also calls for particular mention. It (B.B., 2854) was marked as a chick in the summer of 1914 in Kirkcudbrightshire, and recovered on November 30th, 1926, a few miles away in Dumfries-shire.

There remain a few records obtained under these schemes which do not fall in the category which has so far been considered. These may now be mentioned separately.

Marked as young in Wales and the south of England.—One bird (B.B. 334) marked in Kent was recovered at the same place in January of its first year. One (B.B. U. 1562) marked in Glamorgan was recovered in Westmorland (215 miles) in October of its first year.

Marked as young in Ireland.—Three birds marked in various parts of Ireland were recovered at or near the places of marking in November of the first year (B.B. 524 and A.U. 12393: 108) and December of the second year (B.B. Z3740.).

Marked as an adult.—One bird (B.B. Z.3537) was marked as an adult caught on its nest on July 8th, 1924, at Clitheroe, Lancashire; it was recovered on January 23rd, 1925, at Ashburton, Devon.

VI.—Discussion of British and Irish Results.

As a first step in summarizing the data of which an account has been given, the series which has been treated in detail may be analyzed in a consolidated table (D). It is impossible to include in this any of the records mentioned in Section IV., as complete figures for the minor schemes are lacking. The table is therefore a combination of Tables A, B and C, with the addition of five other records mentioned in Section V. (The *British Birds* record of a Woodcock marked as an adult is excluded.)

TABLE D.

Analysis of Recovery Records of Woodcock Marked as Young in the British Isles.

(*Northumberland, Classiebawn, "British Birds" and Aberdeen University Schemes.*)

Month of Recovery.	Recovered at or near respective places of marking.	Recovered elsewhere within respective general areas of marking.	Recovered outside respective general areas.	Total.
April	3	—	1	4
May	6	—	1	7
June	6	—	—	6
July	4	—	—	4
August ...	4	1	—	5
September ...	15	2	—	17
October ...	13	3	2	18
November ...	46	7	12	65
December ...	49	4	11	64
January ...	69	—	11	81
February ...	6	1	7	13
March	2	—	1	3
Total ...	223	18	46	287

This consolidated table, analyzing 287 records, ignores the distinction between birds recovered in their first season and birds recovered at greater ages, and that between birds marked in one part of the British Isles and birds marked in another. These points, however, may be ascertained by an examination of the separate tables already given. The differences are, in fact, not very great, but a few points will be mentioned later.

THE PROPORTION OF MARKED BIRDS RECOVERED.

A comparison between the figures for the different schemes reveals some differences which would probably be misleading if treated as important. The Northumberland and Classiebawn schemes have yielded approximately double the number of recoveries, in proportion to the numbers of birds marked, obtained in the more general schemes. This is entirely due to recoveries at the places of marking, and can doubtless be attributed to the fact that the birds were marked on shooting estates with the full interest of the proprietors. Under the other schemes the marking has been much more scattered and often under much less favourable circumstances for obtaining the maximum number of local recovery records. As regards other local records, the Northumberland scheme shows a slight advantage over the general schemes, which is surprising in view of the absence of a good address upon the rings. The difference, however, may be fortuitous owing to the unreliability of percentages calculated from small figures; this point is emphasized by the fact that if the small Aberdeen series is taken alone it gives the highest figure of all (3.8 per cent.) for distant recoveries. The Classiebawn scheme shows a very small proportion of distant recoveries, but it must be remembered that in the case of birds marked in Ireland there can be nothing corresponding to the migration to that country from Great Britain which swells the figures for the other schemes.

An illustration may be given of the way in which the recovery figures depend upon shooting on the home estate. Douglas (1929) points out that if the Classiebawn records for the separate periods covered by his two papers be compared, the proportion of marked birds recovered is noticeably smaller in the second period. Further examination shows that this is due to a decrease in the number of birds shot, mainly on the home estate, and that the small percentage recovered by other means than shooting remains about the same. This is no doubt related to the fact that, owing to the war and the subsequently disturbed conditions, the shooting was much less regular than during most of the earlier period.

AGES AT RECOVERY.

The figures in Table E showing the ages at which the birds were recovered may be of interest. The records dealt with are the same as those covered by Table D, except that three Classiebawn records are necessarily excluded because the date ring was missing and only the address ring on the other foot established the record. The years are, as usual, reckoned from the 1st April in the year of marking.

TABLE E.

AGE ANALYSIS OF RECOVERY RECORDS OF WOODCOCK MARKED AS YOUNG IN THE BRITISH ISLES.

Years of Life.	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	11th	12th	13th	Totals
Northumberland scheme	32	10	9	6	–	1	–	–	–	–	–	–	–	58
Classiebawn scheme	49	14	12	7	2	1	2	–	1	–	1	1	–	90
"British Birds" and Aberdeen University	91	28	7	6	3	–	–	–	–	–	–	–	1	136
Total	172	52	28	19	5	2	2	–	1	–	1	1	1	284

It will be seen that 95 per cent. of the recovery records fall in the first four years of life, and that the first year alone accounts for just over 60 per cent. Details of some of the records showing very long life have already been given in Sections III. and V. (It should be observed that a recovery record does not necessarily mean the end of the bird's life. In the Classiebawn scheme, especially, several have been caught and released, and one bird indeed appears twice in the above table.)

YOUNG AND OLD BIRDS COMPARED.

In the case of birds recovered away from the place of marking, the question of age has to be considered, because with an old bird there is always the possibility that a new breeding area has been found in an intervening summer. Any journeys performed by birds recovered in their first winter have obviously been made more or less directly from the place of marking. As regards winter records, however, no difference between young and old birds is in this case discernible. Summer records for old birds are discussed in a later sub-section.

As regards the seasonal incidence of recoveries, it is of course obvious why there are no summer records in the first season: the birds are in these months mostly either unborn

or unmarked, and any recoveries within the flightless period are not recorded. Apart from this, there is one difference which has some interest.

There is a fair proportion of recoveries of birds of the year in September, mainly from the place of marking and none from a great distance. In contrast, there is a conspicuous dearth of September records for older birds, for which it is indeed the poorest month in the year; the single record is from the place of marking. This fact may be related to the well-known observation as to the scarcity of Woodcock at that season. The probable explanation is that the birds adopt skulking habits owing to their moult (which does not affect the chief flight-feathers in the case of the young of the year). It is conceivable that they change their ground locally, but highly improbable that they travel far; there are equally no distant records for the month, and the records for later months show that a great many of the birds spend the winter on the native ground.

STATIONARY AND MIGRATORY BIRDS.

Irrespective of the ages of the birds at recovery or of the parts of the British Isles where they were marked, it is obvious that a great many Woodcock remain in their native districts throughout the winter. There are numerous home records for every month.

On the other hand, some of the birds migrate to a greater or less extent. The records showing this are certainly numerous enough for movement to be considered as not exceptional, but it is only in a very tentative manner that one can venture to make any deduction as to the proportion of birds leaving the native locality.

Taking only birds marked in Scotland and the north of England, it is found that of the recovery records for the period from October to February, inclusively, about 25 per cent. are from a distance and a further 6 per cent. from localities within the general area but considerably removed from the particular places of marking. This suggests that from a quarter to a third of the birds are migratory, and on the assumption that the chances of recoveries being reported tend to be diminished in the case of birds going to a distance, especially abroad, this is probably an under-statement. In the case of Irish birds the proportion of distant records is much smaller.

A further point emerges from the figures just quoted, or indeed from even a cursory inspection of Tables A, C or D, but does not apply to the records of birds marked in Ireland,

This is that among the records showing movement those from moderate distances, *i.e.*, within the general area of marking, are heavily outnumbered by those from greater distances. If any allowance could be made for the varying chances of recoveries being reported, it would presumably be in the direction of increasing this difference. It may also be argued that at least some of the birds recovered at moderate distances were not at the limit of their journeys. This all goes to suggest that if the birds migrate at all they tend to perform considerable journeys, or, in other words, that the individuals tend to be either truly stationary or definitely migratory. Were there merely a wandering tendency, one would expect to find, as in the case of certain other species, that the number of recoveries fell off gradually with distance instead of, as here, dropping rapidly at first and then rising again further away.

No light is thrown on the question as to whether an individual bird which migrates in one season tends to do so in another, or whether the same individual may vary in this respect from year to year. The question is indeed practically insoluble by the marking method ; only in rare instances has the same Woodcock provided two recovery records.

THE DIRECTIONS OF MIGRATION.

In considering this question, account may be taken of individual records mentioned in Section IV. as well as of those in the series which have been presented in detail. Stress is laid chiefly on records for the first winter, as in that case the presence of the bird at the place of marking immediately prior to the migration season is known with certainty.

Movement within Great Britain.—Several records show movement in the first autumn in a northward direction, suggesting a tendency on the part of some of the young birds to an erratic dispersal. The noteworthy cases show movement from Northumberland to Mid-Lothian, Angus and Argyll, respectively, from Dumfries-shire to Moray, and from South Wales to Westmorland, distances ranging from about 55 to about 215 miles. The case of a Northumberland bird recovered in Wigtownshire in its third winter may indicate a similar tendency on the part of older birds, but is capable also of a different interpretation.

Records showing southward movement within the general area of marking, Scotland and the north of England, call for no special remark. They are not numerous, a point which has already been discussed.

Records showing movement to the more southerly portion of Great Britain are of interest in that they indicate a different route from that next to be discussed. They are few in number, however, and must not be given undue importance. The journeys recorded for the first winter are from Perthshire to Cornwall, from Northumberland to Somerset, and from Cumberland to Essex and to Cornwall. A Northumberland bird, too, was recovered in Suffolk in its third winter. There is also the case of a bird marked as an adult in Lancashire and recovered in Devon in the same year.

Migration from Great Britain to Ireland.—A regular migration from Scotland and the north of England to Ireland is indicated by eighteen records for first-year birds and fourteen for older birds. The native localities range from Perthshire to Lancashire, The Irish localities are distributed over most of the country except the extreme north-west, but the western and south-western regions account for about two-thirds of the records, Cork easily heading the list of counties.

Movement within Ireland.—Birds marked in Ireland give no evidence of a definite migration within the country. There is, for instance, no hint of any movement to the south-western region which yields so many records for birds marked in Great Britain. In fact, the longest journey recorded, from co. Sligo to co. Antrim, is one of 100 miles in a north-easterly direction ; this was a first-year bird. Taken together with the cases to be mentioned under the next sub-head, the records suggest an erratic dispersal rather than true migration in the case of Irish birds.

Movement from Ireland to Great Britain.—A bird marked in co. Tyrone was recovered in Inverness-shire in its first season and two others reached the south of England (Cornwall and Middlesex) in their second season, but as the time of year is not stated interpretation is ambiguous. Two birds from co. Sligo were recovered in Scotland, but these were summer records and will be discussed later.

Migration to the Continent.—There are a few winter records showing migration to the Continent, both from northern Great Britain and from Ireland, and, owing to the presumably inferior chances of such cases being reported, they should probably be given more weight than their mere numbers suggest. The actual journeys recorded are from Stirling and from Northumberland to Brittany, from Yorkshire and from co. Sligo to south-western France, from Kincardineshire and from co. Sligo (2) to Spain, and from co. Galway to Portugal. Most of these records relate to birds of the year.

There is nothing to show whether birds native to northern Great Britain reach the Continent by way of Ireland or by way of southern Great Britain.

The unique case of an Irish bird being recovered in Norway in summer is dealt with below.

RETURN TO SUMMER QUARTERS.

The data provide no direct evidence that Woodcock which migrate return to their native localities. Most of the summer records are indeed from the places of marking, but these might be for birds which had not been away during the winter. The paucity of distant records for the summer months might be taken as indirect evidence that the migrants do return, but it must be remembered that the total number of summer records is itself small.

One may be somewhat more confident in basing a conclusion on the fact that there are no summer records from moderate distances. All the recoveries included in Table D for the period from April to August, with one unimportant exception for the last-named month, were either in the locality of marking or right out of the area. This suggests that any return to the native locality is either quite accurate or very wide of the mark ; also that, apart from migration, there is no noticeable tendency to spread to neighbouring districts for breeding purposes.

Coming to the few summer recoveries at a distance, it will be seen that Table D includes two records of birds being recovered in summer in quite different areas from those in which they were marked, and a third instance can be added from Section IV. In these cases birds native to the west of Ireland were recovered respectively in the east of Scotland (May, age unknown), the Shetland Isles (July, three years old) and Norway (April, two years old). These cases are probably to be regarded as exceptional. They may be due to the birds having lost their way on return from distant winter-quarters. Or they may be due to "abmigration," *i.e.*, to birds which have remained in the native area making a spring migration in company with returning winter visitors. In the case of a species of which some individuals are migratory and some are stationary it is impossible to decide between these explanations.

SEASONS OF MIGRATION.

As regards birds marked in Scotland and the north of England, there are a few early autumn records from places

within that general area, *i.e.*, from moderate distances. The earliest date on which a bird is recorded outside the area is October 31st. With that negligible exception and one case in which a Northumberland bird was recovered in Ireland as late as March, all the really distant records refer to the period November to February inclusive. There are half-a-dozen or more recoveries in Ireland for each of these four months. Recoveries from southern Great Britain and from the Continent are in the period November to January inclusive.

As regards birds marked in Ireland, the few records of Classiebawn birds which show appreciable movement are, with the exception of two summer records, for November and December.

VII.— Foreign Results.

Under this head only individual records of special interest need be mentioned.

Marked abroad and recovered in the British Isles.—A Woodcock marked on July 16th, 1913, with a German ring ("Rossitten 4629") as a young bird, at Gatschina, near Petrograd, Russia, was recovered on November 15th, 1913, in Kent (Thienemann, 1915).

One marked as a chick near Jönköping, Sweden ("Stockholm A.589") on May 25th, 1925, was recovered in Warwickshire in December, 1927 (Lönnberg, 1927).

One marked as an adult on Heligoland ("Helgoland 24311") on April 29th, 1923, was recovered in co. Tyrone, Ireland, on December 31st, 1923 (Weigold, 1925).

Other records of birds marked abroad.—Other Woodcock marked at Gatschina, near Petrograd, were recovered during the first winter near Trieste, in south-western France, and at Ostend; and another in the following spring in the Pfaz (Thienemann, 1911, 1913 and 1914).

Woodcock marked as young at Jönköping, Sweden, have been recovered in their fifth year in southern Norway and (December) in Côtes-du-Nord, France (Lönnberg, 1928). One marked in Västergötland, Sweden, was recovered in southern Portugal at the end of December in the same year (Jägerskiöld, 1929).

A Woodcock marked, with a Hungarian ring, as a young bird in Bohemia was recovered in its first winter in Corsica (Schenk, 1915).

Woodcock caught and marked on passage at Heligoland in autumn have been recovered in the following August in southern Sweden; in the following October in Oldenburg, northern Germany; and in March of the second subsequent

spring in Haut Saone, France (Weigold, 1911 and 1912; Krüss, 1918).

VIII.—SUMMARY AND CONCLUSIONS.

An analysis is presented of the records for the Woodcock (*Scolopax rusticola*) obtained in the *British Birds* and the former Aberdeen University bird-marking inquiries. Analyses are also given of the records obtained in two private schemes for marking Woodcock (Northumberland, and Classiebawn, co. Sligo) of which full details have been published. From these sources there are in all available 287 recovery records of Woodcock marked as young in the British Isles: in 96 cases the native area was Ireland, and in 189 cases Scotland and the north of England. Some particulars are also given of minor private schemes for marking Woodcock: while full information is not available, they provide some additional records of individual interest in respect of Irish birds. Foreign records of special interest are also mentioned.

These data are discussed, and the following general conclusions with regard to British and Irish Woodcock emerge:—

(1) Many of the birds are stationary, and records from the place of marking or its near vicinity are common throughout the winter. The number of birds shot on their native ground, often after a lapse of several years, is indeed a striking feature of the data.

(2) Other birds are migratory. The proportion in Scotland and the north of England may be a third; in Ireland it is probably much less.

(3) In the case of birds marked in Scotland and the north of England, the proportion of records from moderate distances is relatively small, suggesting that the birds tend to be either truly stationary or definitely migratory.

(4) Among the records from moderate distances are several indicating some degree of erratic movement in the autumn, at least in the case of young of the year, taking birds in northerly directions from the places of marking.

(5) There is a regular autumn movement from northern Great Britain to Ireland, the recoveries in the latter country falling mainly in the period from November to February inclusive.

(6) There are a few records suggesting a slighter autumn movement from northern Great Britain to the south of England.

(7) There is no evidence of any regular movement of Irish birds within that country.

(8) Some birds, not improbably a greater proportion than the records indicate, reach the Continent in winter, the recoveries falling in the months of November, December and January. The journeys recorded are from Scotland to north-western France and to Spain, from the north of England to north-western and south-western France, and from Ireland to south-western France, to Spain and to Portugal.

(9) There is no positive evidence of the return of migrants to their native localities, but the summer records from other localities are perhaps few enough to be regarded as exceptional. They include the remarkable case of an Irish bird being recovered in southern Norway when two years old.

(10) There is a curious lack of September records, either at home or away, for other than young birds; but it seems unlikely that this is related to any fact of migration.

(11) About 95 per cent. of recovery records relate to the first four years of life. Some birds, however, live considerably beyond this, the greatest ages recorded being 8½, 11, nearly 12, and 12½ years respectively.

(12) The proportion of marked birds recovered is obviously influenced to a great extent by various artificial factors, notably shooting on the home estate, thus illustrating the danger of attempting to treat the data statistically.

Two Woodcock marked as young in Russia and in Sweden respectively have been recovered in England in winter. A bird recovered in Ireland in winter had been marked on Heligoland on the previous spring passage, presumably when on its way to some breeding-ground in northern Europe. Extensive journeys have also been recorded in the case of several birds marked and recovered on the Continent.

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NOTES

"BRITISH BIRDS" MARKING SCHEME.

"RINGERS" are requested to send in to the Editor, not later than October 1st, their schedules, together with a list showing the number of each species ringed.

GOLDEN ORIOLE IN YORKSHIRE.

MR. T. PATTON informs me that on May 8th, 1929, a lady who rented a cottage at Runswick Bay, near Whitby, left it empty for the day, having closed all doors and windows. On her return she found in one of the rooms a bird which must have come down the chimney. In capturing the bird to liberate it some of the tail-feathers were pulled out. Mr. Witherby has identified them as belonging to a female Golden Oriole (*Oriolus o. oriolus*), which is only a casual visitor to Yorkshire.

H. A. A. DOMBRAIN.

INCUBATION- AND FLEDGING-PERIODS OF LINNET.

THE fledging-period of the Linnet (*Carduelis c. cannabina*) has been variously given in *British Birds* as 10–14 days (mostly thirteen). Here is a case (which I noted at Seaford, Sussex, during 1929) that extended to the 17th day.

May 20th, 3 eggs; 22nd, 5 eggs (sitting); 26th, ditto. June 2nd (3 p.m.), 2 eggs, 3 young (incubation-period 11½ days); 10th, 4 young, 1 addled egg; 12th, 4 young ringed; 13th–17th, at least 3 young in nest; 18th (8.30 p.m.), ditto; 19th, nest empty.

The nest was in gorse and could be examined without touching the bush. There is not the least doubt that the birds were alive and well, as on the last few days their eyes could be seen by the observer.

J. F. THOMAS.

GREY WAGTAIL'S NEST IN A DRAIN PIPE.

IN April, 1929, I found a pair of Grey Wagtails (*Motacilla c. cinerea*) nesting four feet up a horizontal drain pipe in a railway culvert overlooking the river Conway at Bettws-y-Coed, Carnarvonshire.

M. V. WENNER.

INCUBATION- AND FLEDGING-PERIODS OF TREE-CREEPER.

COL. J. E. H. SAWYER, at Burwash, Sussex, records of the Tree-Creeper (*Certhia f. britannica*): Incubation-period, fourteen days and fledging-period fifteen days, while I have noted the fledging-period at fifteen days in the New Forest.

Both cases appear free from any possible error.

TOM G. LONGSTAFF.

DISPOSAL OF ADDLED EGGS BY GREAT AND BLUE TITS.

On May 19th, 1929, in a nesting-log in my garden in Mawgan-in-Pydar, north Cornwall, a Great Tit (*Parus m. newtoni*) hatched three of her seven eggs. On May 21st the nest contained two living nestlings, one dead nestling and four addled eggs. On May 22nd two living nestlings only were visible. On June 5th the two nestlings left the nest, which I removed and examined carefully and found no traces of the four eggs or of the dead nestling. It seems certain that the eggs and the dead bird had been disposed of or ejected by the parents.

On June 1st, 1929, a Blue Tit (*Parus c. obscurus*), also in a nesting-log in my garden, hatched three of her seven eggs. On June 4th the three nestlings were present, but I could see nothing of the four addled eggs. On June 20th the three nestlings left the nest, which I removed and examined. I found the four addled eggs securely woven into the wool lining about a quarter of an inch below the surface, each egg being as far removed from any of the others as space would permit.

B. H. Ryves.

BLUE TIT TAKING DEAD YOUNG BIRD FROM NEST.

On June 21st, 1929, I was standing a few yards from a nest-box in my garden at Birmingham, watching a pair of Blue Tits (*Parus c. obscurus*) feeding their family in the box. I was puzzled to observe one parent bird go several times to the nesting-hole with food, and then fly off again to a perch near without feeding the young. At the third or fourth visit to the box, it was met at the hole by the other parent, emerging from the box, pulling with it a large object, which it evidently had difficulty in pulling up to and out of the hole. It carried this object as far as it could, about four or five yards, and left it on the ground under some plants, and flew off. I found that this heavy object was a dead young bird, already partly feathered. As far as I was able to observe, the parent bird used both beak and feet to carry the dead fledgling. The rest of the family did not leave the nest till the early morning of the 26th, nearly five days later.

I have not had much acquaintance with the nesting-habits of Tits, but I understand from other observers that Blue Tits normally leave their nesting-hole clean and fresh, whereas

Great Tits (*P. major*) sometimes lose their whole brood by the poison arising from a dead young bird at the bottom of the nest. If this is so, it suggests that Blue Tits usually remove any of their young that die in the nest; but I suppose it must be a rare chance actually to witness the removal of the dead bird. H. G. ALEXANDER.

FOOD OF THE RED-BACKED SHRIKE.

THE food of the Red-backed Shrike (*Lanius c. collurio*) is extremely varied. At one time or another I have found in their "larders" many kinds of beetles, bees, wasps and moths. Also they are responsible for the deaths of many small birds, of which the Willow-Wren (*Phylloscopus trochilus*) and Whitethroat (*Sylvia communis*) seem to occur most frequently; and they will kill birds up to the size of young fully-fledged Blackbirds (*Turdus merula*) and Thrushes (*T. ph. clarkei*). I have also seen in the "larders" long-tailed and short-tailed field-mice and shrews frequently; more rarely, small frogs and occasionally portions (usually about an inch and a half long) of large earthworms.

Once on examining a Red-backed Shrike's nest from which the brood had just flown I found a freshly dead young one in the nest. I hung this up in the "larder" and lay down not many yards away, to watch. In about ten minutes the hen made an effort to carve it up and tried again and again. However, I had hung the young one on a thorn so placed that there was no perch from which she could work at it to advantage. The cock bird also made a vain attempt and then promptly tore the body off the thorn and impaled it on another about three yards away. Both old birds then visited it and in a very few minutes the carcass was unrecognizable.

I had learned that Shrikes would utilize carrion, such as small rabbits and birds that they cannot lift, by tearing off portions which are fed directly to the young or, if too large, are transferred to the "larder" for future use, and this summer I had an exceedingly interesting case of this habit. For three consecutive years Shrikes had reared young in a solitary bush at the end of a cottage garden on Stebbing Green, Essex. Last winter, however, the bush was so damaged that when the birds returned in the summer they nested in a blackthorn some fifty yards away. The cottagers had become interested in the birds and used to watch their doings very keenly. This year I did not show them the new nesting-site, but they found it, after the young had hatched,

in a very curious manner. Their dog waked them up by furious barking at two o'clock one morning. The man went down and found a large hedgehog in the chicken run. He killed it and laid it on its back on the garden fence, intending to bury it later. When he came down in the morning both Shrikes were busy on the hedgehog. They had torn a hole in the belly and were carrying pieces of flesh and intestine to the nest. The man followed the birds and thus found the nest and used to visit it frequently until the young left. It may be mentioned that this nesting-site was unusual in that the Shrikes' main "larder" had been for the previous three years and still was in this particular blackthorn, but on the side opposite to that from which the birds entered to reach the nest.

The habit of putting food in a "larder" is not confined to the old birds, the young also hang up food they do not require at the time of catching. J. H. OWEN.

LARDER OF RED-BACKED SHRIKE.

A PAIR of Red-backed Shrikes (*Lanius c. collurio*) have for the third year in succession built a nest in the hedge of our small paddock of about two acres at Bourton-on-the-Water, Gloucestershire. This year, however, has been the first in which we have observed the male bird make a larder. In one afternoon we discovered seven humble-bees impaled on blunt spurs, from half to an inch in length, of alder, birch and hazel. The hedge in which the nest is built is largely of hawthorn, but the bird seems to have deliberately chosen thornless trees for his victims.

The humble-bees, all queens, were impaled through the thorax, at all angles, one being upside down, and were of the following species:—*Bombus ruderatus* (typical and var. *harrisellus*, Kirby), *B. jonellus*, *B. helferanus*, *B. lucorum*, *Psithyrus distinctus* and *P. barbutellus*.

After we had removed and examined the bees, the Shrike later the same evening captured a dor-beetle and impaled it on one of the alders. The next day three more humble-bees were added.

As soon as the nest contained the full complement of eggs the male bird ceased making a larder.

As bees of the genus *Psithyrus* are deadly parasites of the true humble-bee or *Bombus*, the fact that a number of *Psithyrus* queens were included in the larder is worthy of note. HELEN E. DONOVAN.

FEMALE BLACKBIRD'S ATTACHMENT TO TERRITORY

WITH reference to my previous note (Vol. XXII., p. 87), it may be of interest to learn that the Blackbird (*Turdus m. merula*), widowed on July 6th, 1928, maintained possession of her territory throughout the remainder of the year and the recent winter.

Early in February of this year (1929) she appeared to be mated to one of two rival cocks, which soon took the place of her late partner. On March 12th she commenced to build in the branch of an *insignis* pine about 15 feet distant from the nest which she had occupied during 1926 and 1927. Eleven days were occupied in its construction. Her nest of 1928 had been blown down by winter gales. The branch is about 30 feet above the ground and the site is precisely the same as that in which she commenced to construct a nest in 1928, but which she was forced to abandon, because her late mate, undoubtedly disapproving of the position, attacked her in mid-air, while carrying materials, and prevented her from taking them to it.

This year, incubation of the first clutch was commenced on March 26th. On April 3rd, with the ground parched by protracted drought, the sky was overcast and a cutting N.E. wind was blowing. About 9 a.m. I saw the hen leave her nest and fly to her mate, screeching at and attacking him with beak and wings, until she succeeded in driving him to the nest, which he entered, proceeding to brood the eggs until her return fifteen minutes later. In the afternoon I saw a similar attack, with the same result. On April 4th the cock, only on a call from the hen, brooded the eggs during her absences for food. On April 5th the weather changed to comparative mildness and the cock altogether ceased going to the nest. On April 9th the eggs were hatched, and on the 22nd the young left the nest.

On May 3rd, in the same nest, incubation of the second clutch was commenced. On May 10th the eggs were hatched, but the young died during the day. The weather was severe, with drenching rain and a strong gale, to the full force of which the nest was exposed.

On May 17th a new nest was rapidly constructed in a thick thorn bush some 20 yards distant, and was completed on May 18th. On May 22nd the hen began incubation of her third clutch, which she hatched on June 4th. The brood left the nest on June 17th, after which nesting operations ceased.

This hen Blackbird is quite unique in any experiences which I have had of the species, for in 1927, while rearing her second brood, she acquired precisely the same beautiful bar of song that was usually uttered by the cock when approaching the nestlings with food. This particular low, sweet and flute-like song is common with most cocks when nearing the nest, but never before nor since have I heard it emanate from any other hen. The notes of the two birds were so identical that it was impossible for me to say, without identification, which of them was the musician. She continued the habit until the brood was fledged, and again throughout the rearing of the third brood, and also when she was rearing her three broods in 1928. This year, I heard no song uttered by her with the first nest, but I heard it frequently during her second and third nestings. B. H. RYVES.

HEDGE-SPARROW HATCHING ANOTHER'S EGGS WITHOUT LAYING.

THE Hedge-Sparrow (*Prunella m. occidentalis*) is very prone to desert if it has even a faint suspicion that the nest is known or has been interfered with in any way before eggs have been laid. A nest which I found this year at Felsted, Essex, was quite finished and ready for eggs. Four days later I revisited it, as it was in an ideal situation for a Cuckoo to utilize. There were no eggs in it, and it appeared to be deserted like so many others I had found and revisited. I took two eggs from another Hedge-Sparrow's nest and placed them in it. A few days later I revisited it and thought I saw a bird leave the nest, but there were still only the two eggs I had placed in it. Another visit proved that the Hedge-Sparrow was actually sitting on the two eggs and she finally hatched them without laying any in the nest herself. J. H. OWEN.

MONTAGU'S HARRIER IN BUCKS.

As only four occurrences of this species are recorded in Hartert and Jourdain's *Birds of Buckinghamshire and the Tring Reservoirs* and some of these are very indefinite, it seems worth recording that a Harrier was trapped by means of a lure (a Linnet in a cage) either on one of the last days of April or May 1st, 1929, near Slough, by a gamekeeper.

I did not see the bird till considerably later, when it was hanging on a pole with other victims in a somewhat advanced state of decomposition, but I sent a wing and some tail-feathers to the Rev. F. C. R. Jourdain for verification and he had no hesitation in identifying them as those of an immature male Montagu's Harrier (*Circus pygargus*). ROBT. H. DEANE.

HERON SWIMMING.

MR. ALEXANDER's note on this subject (*antea*, p. 39) reminds me that I saw a Heron swimming in Witton Flashes, near Northwich, Cheshire, on May 17th, 1922. When first I saw the bird it was flying heavily across the countryside and it dropped down to the water, which is of great depth, apparently in difficulties with something it was carrying—an eel, so far as I could see. After a short time it rose and, after flying two or three hundred yards further, again dropped down to the water and swam there for some time until it had overcome its difficulties. It then flew off again quite strongly.

A. W. BOYD.

GREY LAG-GEESE IN SHROPSHIRE.

I recently examined in the shop of Mr. Shelbrooke, taxidermist, Bridgnorth, an adult Grey Lag-Goose (*Anser anser*) shot in March, 1929, at Eardington. Five of these geese had been seen on the Severn there throughout the frosty weather of February-March. The Grey Lag is by far the rarest of the wild geese in Shropshire, and I have no record (prior to this) during the thirty-four years that I have kept notes.

During the frost, especially towards the end, large numbers of dead wild fowl came down the Severn at Bridgnorth; either shot or perished of cold and starvation. People waited by the riverside trying to get some of them. Amongst specimens brought in to Mr. Shelbrooke were two Common Gulls, three Pochards and a Red-throated Diver.

H. E. FORREST.

BREEDING OF GARGANEY IN DORSET.

DURING the present season, drake Garganeys (*Anas querquedula*) have been observed under circumstances which indicated probable breeding in at least three different localities in Dorset. At Lodmoor, near Weymouth, a male was repeatedly seen during the latter half of May, 1920, and was identified by the Rev. F. L. Blathwayt, the Rev. C. J. Pring, myself and other observers, but the nest was not discovered till June 6th, when Mr. A. Blinn flushed the duck from a well-concealed nest with nine eggs—in grass and sedge. The nest was freely lined with down and incubation had evidently been in progress for some days. A sample of the down and feathers showed all the characteristics of this species, and the eggs were also typical.

Although Mr. T. M. Pike (*Zoologist*, 1878, p. 130) stated that he believed that a brood or two of this species were usually hatched off in the neighbourhood of Poole Harbour, there seems to be no previous definite record of nesting in the county. F. C. R. JOURDAIN.

LITTLE GREBES DIVING WITH THEIR YOUNG.

IN his *Birds of the British Isles* (Second Series, page 319), Mr. T. A. Coward states that there is no proof that the young are carried down under the old bird's wing when the Little Grebe (*Podiceps ruficollis*) dives. He says (p. 318) that "the old birds dive when the young are on their backs, but the little ones rise like corks" and await the reappearance of the old. It may, therefore, be worth recording that on July 19th, 1929, a chick Little Grebe a few days old, which I had caught and let go again, scrambled up on to the back of its mother when she approached and crept under her arched wings. I then clapped my hands and the parent bird dived quickly and came up two or three yards away with the chick still on her back. I saw this happen several times and though the dive was often sudden the chick stayed on its mother's back. It was all the time covered by her arched wings, which must have pressed it down close to her body when she dived. The birds were within a few yards of my boat during all these dives. G. F. M. SWINY.

COMMON GULL BREEDING IN ROOK'S NEST IN SCOTLAND.

ON May 25th, 1929, Mr. S. Taylor and I visited the Greenhaugh rookery, which it must be stated is partially deserted. Mr. Taylor, while climbing a scots pine, knocked over a Rook's nest which contained three Gull's eggs. The eggs, which were somewhat incubated, were broken, but I took the shells to the Elgin Museum and with the assistance of the Curator identified them as those of the Common Gull (*Larus c. canus*).

On June 4th I again visited the rookery, being accompanied on this occasion by Messrs. F. McHardy and J. Nicholson, who were removing the Rooks' nests. In one of the nests in a scots pine a Gull was sitting on three eggs. The bird allowed Mr. McHardy to climb a ladder and almost touch the nest before she flew off. An excellent view was thus obtained and she was certainly a Common Gull. After flying off she was joined by her mate and the two circled over us for the rest of the time we were there. One of these eggs

was sent to the Rev. F. C. R. Jourdain, who states that it is typical of *L. canus*. These eggs were fresh, and it seems probable were a second laying by the bird whose eggs were broken on May 25th. The nests occupied by the Gull were in different trees and one was at least sixteen and the other quite twenty feet from the ground.

It may be remarked that Common Gulls nest in ordinary sites on the ground in the neighbourhood, and while their nests are sometimes harried, this is not done to such an extent as to account for such an unusual nesting-site as that adopted by this pair. R. W. DAVIES.

IMMIGRATION OF CROSSBILLS.—Further reports on the movements of Crossbills (*vide antea*, p. 69) have reached us and are as follows :—

SHETLAND.—Mr. C. Oldham adds details to his first brief report and states that in Foula he was told that a Crossbill was brought in by a boy on June 26th, while a small flock was seen in the last week of the month. Mr. Oldham himself saw two Crossbills there on July 3rd and a party of eight on the 4th. In the Mainland he heard of one on July 3rd, saw one on the 9th, three on the 11th, one on the 14th and three and fourteen on the 15th.

ORKNEY.—Mr. J. V. Stephens saw a party of six in Hoy on July 9th. The birds were feeding on seeds of heather. Mr. Stephens sent us the head of an adult male which had been killed by a Kestrel, and the rest of the party consisted of an adult female, an immature male and four younger birds. Mr. C. Oldham heard of one killed by a cat at Stromness on July 5th, and that others, including a flock of fourteen, were seen during the fortnight following.

ABERDEENSHIRE.—Mr. C. Oldham saw four fly across the Dee at Aboyne on July 20th.

MONTGOMERYSHIRE.—Mr. H. E. Forrest writes that Dr. F. Penrose saw a small flock by Lake Vyrnwy on July 13th, 14th and 21st.

SHROPSHIRE and WORCESTERSHIRE.—Mr. H. E. Forrest informs us that Mrs. Hanbury Sparrow saw between forty and fifty at Church Stretton on July 5th. Most of these were immature birds and they have remained in the neighbourhood. Mr. W. A. Cadman also reports numerous small flocks from the last week of July to August 13th at Church Stretton. Mr. J. Steele Elliott saw a party of ten at Bewdley on July 7th, small parties frequently up to August 4th and a scattered party at Burnt Green on August 6th.

HERTFORDSHIRE and BUCKINGHAMSHIRE.—Mr. C. Oldham reports many in the woods on the county boundary between Berkhamsted and Chesham on July 29th and six near Tring on August 2nd.

PEMBROKESHIRE.—Mr. R. M. Lockley writes that a solitary female visited Skokholm on July 5th.

DEVONSHIRE.—Mr. W. Walmsley White informs us that in the neighbourhood of Budleigh Salterton he has seen Crossbills on most days since July 12th up to the time of writing (August 4th). They were usually in the twos or threes, the largest party seen consisted of twelve.

SOMERSETSHIRE.—Mr. S. Lewis writes that he is informed by Mr. F. H. L. Whish that Crossbills appeared at Lympsham on July 16th and 17th and by Mr. D. B. Grubb that six were seen near Winscombe from July 18th to 20th and on the same dates some near Shapwick.

ISLE OF WIGHT.—Mr. J. F. Wynne informs us that a flock of about twenty appeared at Shanklin on June 28th and about half of these were still present (August 1st). Mr. Wynne had not seen Crossbills here since the autumn of 1927.

IRELAND, CO. DOWN.—The Honble. C. Mulholland is informed by Mr. C. B. Horsbrugh that about forty were seen at Hillsborough on July 5th. These were feeding on grass seeds and thistles. Mr. Horsbrugh saw a flock about the middle of July, but has not seen nor heard of any others since.

ABUNDANCE OF BLACK-NECKED GREBES IN ESSEX—Mr. J.W. Campbell informs us that *Podiceps n. nigricollis* was more than usually abundant in the Blackwater Estuary during the winter of 1928–29, and that on December 20th, 1928, he sailed close to two parties, one of ten and the other of twenty-five birds.

STATUS OF THE GREAT NORTHERN DIVER IN ESSEX.—With reference to Mr. Glegg's remarks on *Colymbus immer* in his *History of the Birds of Essex* (p. 206) where he describes it as the scarcest of the Divers as winter visitors and has only been able to collect eight or nine occurrences during a century, Mr. J. W. Campbell writes that it is the only species of Diver he has met with on a certain stretch of the Blackwater at this season and quotes six observations relating to eleven individuals, made during December and January in the last three winters.

STATUS OF THE SANDERLING AND TURNSTONE IN ESSEX.—With reference to our remarks (*antea*, p. 47) on the status of uncommon passage migrants assigned to the Sanderling (*Crocethia alba*) and to the Turnstone (*Arenaria i. interpres*) in *A History of the Birds of Essex*, Mr. J. W. Campbell writes that he saw a party of twelve of the former at Colne Point on June 9th, 1929, and that the latter occurs regularly in parties of from twelve to twenty or more birds during both spring and autumn passages at West Mersea and Bradwell, while it was reported from Mersea Flats in December, 1928.

REDSHANK AT HIGH ALTITUDE IN SCOTLAND.—Mr. Seton Gordon informs us that on June 27th, 1929, he put up a *Tringa totanus* at 3,000 feet above sea-level on the western Cairngorms. The bird did not appear to have a nest, though it may have had a mate sitting.

ROSEATE TERN BREEDING IN SCOTLAND.—With reference to the note concerning the breeding of a pair of *Sterna d. dougallii* in Fifeshire in 1927 (*antea*, p. 45), Mr. J. S. Reeve writes that in June, 1927, he found two clutches, one egg each, of the Roseate Tern on the east coast of Scotland. He watched the birds down to the nest in each case. They were in a colony of Common Terns in the middle of which was also a colony of Sandwich Terns.

LETTERS

EXTRAORDINARY SEXUAL DISPLAY BY A PAIR OF HEDGE-SPARROWS.

To the Editors of BRITISH BIRDS.

SIRS,—May I confirm M. Jacques Delamain's observation of Hedge-Sparrows (*antea*, p. 19). I saw a similar "display" take place on April 9th, 1928, in north Northumberland. The courtship took place on a country road and was in progress when I arrived. The attitudes of the male and female were essentially as described by M. Delamain, as were the frequent pecks by the male at the female's vent. The male, however, was not observed to go right round the female, but kept behind as described. This courtship was terminated by coition. So quickly did the latter take place that I decided that confirmation by further observation would be desirable, but so far I have seen no more of this Hedge-Sparrow courtship. What I saw was as follows: Suddenly the cock leapt into the air, behind the hen, appeared to effect coition, and then dropped back on to the road and uttered a few soft notes of song. The birds then followed one another across the road into the hedge. The performance took place so quickly that the male must barely have had time to settle on the female's back before once more alighting on the road. C. NOBLE ROLLIN.

THREE REDSHANKS AT ONE NEST.

To the Editors of BRITISH BIRDS.

SIRS,—The incident recorded (*antea*, p. 68) by Mr. W. A. S. Lewis of three Redshanks seen at one nest is, I believe, but another example of the "visiting habit" which occurs with other species.

In April, 1929, while observing a pair of Ravens (*Corvus corax*) feeding nestlings, the two birds settled on a crag just above the nest and were joined by two other Ravens. The four birds remained together for about ten minutes and appeared to be on perfectly friendly terms. On several occasions I have seen a male Buzzard (*Buteo buteo*) approach his mate, sitting on their nest, in company with another bird. The same thing may be seen with Goldfinches and other birds.

Once an "individual territory" has been definitely secured by a pair of birds and approved by other pairs of the same species, a distinct mutual understanding, if not friendship, seems to develop among them.

B. H. RYVES.

MAWGAN-IN-PYDAR, N. CORNWALL, *August 5th*, 1929.

REVIEWS.

Report on Scottish Ornithology in 1927, *including Migration*. By Evelyn V. Baxter and Leonora Jeffrey Rintoul. Reprinted from *The Scottish Naturalist*, 1928, pp. 105–121 and 135–162.

THIS excellent annual summary of Scottish ornithological events appears to have been compiled with the authors' usual care and contains many interesting items. Among these, the following, which have not previously been mentioned in our pages, may be referred to:—

MAGPIE (*Pica p. pica*).—One trapped on Islay in early summer appears to be the first recorded for the Inner Hebrides.

NORTHERN BULLFINCH (*Pyrrhula p. pyrrhula*).—Several at Fair Isle from October 24th to November 2nd.

SCARLET GROSBEAK (*Carpodacus e. erythrinus*).—At Fair Isle on September 3rd, 23rd and 24th.

TWO-BARRED CROSSBILL (*Loxia l. bifasciata*).—One at Fair Isle on September 2nd and 5th.

LITTLE BUNTING (*Emberiza pusilla*).—One at Fair Isle on October 1st and another on the 29th.

LAPLAND BUNTING (*Calcarius l. lapponicus*).—Besides usual autumn occurrences at Fair Isle, one appeared on May 18th.

ICTERINE WARBLER (*Hippolais icterina*).—At Fair Isle on June 2nd and August 21st.

SIBERIAN LESSER WHITETHROAT (*Sylvia c. affinis*).—One at Fair Isle on September 8th.

GREAT SPOTTED WOODPECKER (*Dryobates m. anglicus*).—In connexion with the spreading of this species in Scotland, nesting is now reported from Nairnshire and Ross-shire.

SHELD-DUCK (*Tadorna tadorna*).—A first record of breeding in Caithness is provided by Mr. C. Oldham, who saw a pair with small young in Dunnet Bay on July 14th, and a pair with eight young near Wick on July 15th.

GARGANEY (*Anas querquedula*).—Four were seen at Morton Loch (Fife) on April 16th and a pair on the 19th.

KING-EIDER (*Somateria spectabilis*).—Five were observed off Tentsmuir Point (Fife) on December 29th.

FULMAR PETREL (*Fulmarus g. glacialis*).—Found nesting in the Treshnish Islands and Bulgach Island by Mr. Bryce Duncan.

WOOD-SANDPIPER (*Tringa glareola*).—One at Fair Isle on May 11th.

De Vogels van Nederland. Door Prof. Dr. E. D. van Oort. Vol. III.

IN this third volume of his important work on the Dutch avifauna, Dr. van Oort completes the Waders (part of which are to be found in Volume II.) and discusses the Skuas, Gulls and Terns, as well as the Auks; he then proceeds with the Pigeons, includes the common Cuckoo (the only species of the family occurring in Holland) and finishes with the Owls.

As we have remarked in previous notices of this work, the plates form a very valuable feature. Regarded as pictures, only a few can be said to have much merit, but as figures showing the various plumages of each species they are unsurpassed. For instance, in this volume, the Arctic, Long-tailed and Pomatorhine Skuas and most of the Gulls and Terns have from six to eight or more figures each, showing various plumages of the adults and young. The Black-tailed Godwit has six figures (one in flight would have been useful) and even a rare straggler like the Cream-coloured Courser is given two life-sized figures.

In nomenclature Dr. van Oort frequently breaks away from now generally accepted standards. He does not use, for instance, Pallas's names in Vroeg's Catalogue; he calls the Glaucous Gull *Larus glaucus* of Brunnich (although it is preoccupied) and the Guillemot *Uria troille*, notwithstanding Mr. Jourdain's arguments in Vol. XVI. of this journal.

SH MUS Z D

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MONTAGU'S HARRIERS AT THE NEST.

BY

J. C. HARRISON.

(Plates 5 and 6).

THE following is a brief account of observations I have made from hides, with the help of Mr. J. Vincent, at three nests of Montagu's Harrier (*Circus pygargus*) in Norfolk. One nest had five eggs, one two small young and the other five young in an advanced stage.

I noticed that when she was incubating, the hen bird rarely left the nest except to take food from the cock, who flew over periodically with it in his talons. When over the nest he would call to his mate, the note being similar to that of a barndoor fowl calling her chicks. On hearing the call the hen would fly to him, and as she approached he would drop his prey and she would catch it in her talons. This pass of food would always take place with the birds' head to wind and the hen would usually take it in an upright position with her tail pointing down. She would then take the food to the ground some distance from the nest. After feeding she would invariably return to her eggs with sedge in her bill to line the nest. At intervals, when sitting, she turned her eggs, raising herself slightly and turning each egg with her bill.

At the nest with the small young the hen spent most of her time brooding while the cock hunted for food. This was plucked of feather or fur before being brought to the hen and consisted chiefly of the young of Moorhen, Coot, duck, game birds, small birds and mammals.

Most of my time, however, was spent in watching the nest containing the five larger young. At this stage I found that the hen did not visit the nest except when bringing food or sometimes during rain. She brought food frequently and would feed the smallest young one herself, the quick movement of her head was particularly noticeable in the process. In the case of the larger birds it was left for them to tear up for themselves. Two birds were usually absent as they could fly a short distance, and these were often fed in the sedge a short distance from the nest.

The pair from this nest nearly always exchanged food close up, the female seeming to take it direct from the cock's talons and not after he had dropped it, as was the case with the others.

Montagu's Harrier.
(*Drawn from life by* J. C. Harrison.)

Montagu's Harrier.
(*Drawn from life by* J. C. Harrison.)

BRITISH MUSEUM

On one occasion I was fortunate in seeing the cock bird come down to this nest with food. He called as he flew over the hide, but the hen was not in the neighbourhood, and was probably away hunting which accounted for his appearance. It is very unusual to see the cock at the nest.

One morning during a storm the mother bird came to the nest and spread her wing over one youngster, while the others stood motionless in an upright position, evidently to allow the water to run down their feathers. When it ceased raining and the mother-bird had left, they fully expanded their wings on the nest to sun themselves.

At one time a Bittern (*Botaurus s. stellaris*) flew into the territory of this pair of Harriers and was immediately attacked by both birds and driven down to the sedge, where the attacks were repeated, the Harriers stooping at him like Peregrines. He attempted to fly once but was soon driven down again, the same performance continuing until we appeared and flushed the Bittern, who flew off unmolested.

The female Harrier at the nest containing the eggs had not yet shed her immature plumage and her irides were dark brown. The other two females were in full adult plumage, one rather greyer than the other, and the irides in both cases were brilliant yellow.

The four pencil drawings here reproduced were originally done in the hide near the nest with five young, two of these being absent at the time.

RECOVERY OF MARKED BIRDS.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	RAVEN (*Corvus c. corax*).	
104667	Breconshire, 23.4.27, nestling, by A. Mayall	Blaenavon, Monmouthshire, 9.3.29, by G. J. John.
104675	Radnorshire, 24.4.27, ditto.	Knighton, Radnor, late December, 1928, by O. R. Owen, per E. P. Chance.
	HOODED CROW (*Corvus c. corone*).	
69662	St. Kevin's Park, Dublin, 27.6.28, young, by P. G. Kennedy.	Near where ringed, 12.11.28, by ringer and J. Bell.
	CARRION-CROW (*Corvus c. cornix*).	
RR.6124	Near Frome (Som.), 19.5.28, nestling, by H. V. Bamford.	Near Shepton Mallet (Som.), April, 1929, by B. E. Parsons.
RR.6725	Near Bath (Som.), 3.6.28, young, by J. D'eath.	Ditto, 12.5.29, by R. Foot.
28757	Near Skirwith (Cumb.), 3.6.27, nestling, by R. H. Brown.	Alston (Cumb.), 17.4.29, by T. W. Pearson.
	ROOK (*Corvus f. frugilegus*).	
77387	Near Huddlesceugh Hall (Cumb.), 30.4.25, nestling, by R. H. Brown.	Where ringed, April or June, 1928, by F. Whealleans.
77383	Ditto ditto.	Low Scales, Kirkoswald (Cumb.), 2.2.29, by E. T. Bell.
24866	Near Gt. Budworth (Ches.), 1.5.26, ad., by A. W. Boyd.	Near where ringed, 29.4.29, by H. Gandy.
RR.2041	North Weald (Essex), 28.4.27, young, by St. Edmund's School N.H.S.	Chipping Ongar (Essex), 12.11.28, by J. Bennett & Sons.
RR.2876	Leamington (Warwick.), 19.3.28, ad., by P. K. Chance.	Where ringed, 8.3.29, by F. Reeves.
78724	Bottesford (Leics.), 27.4.28, young, by N. Walford, for Miss F. K. Staunton.	Ditto, 4.5.29, by H. J. Craske.
	JACKDAW (*Colœus m. spermologus*).	
74814	Dorney (Bucks.), 25.5.25, nestling, by A. Mayall.	Where ringed, Jan., 1928, by ringer.
RR.1	Crags of Lundie (Forfar), 26.5.26, nestling, by T. L. Smith.	Auchterhouse (Angus), May, 1929, by R. Fiddes.
79676	Near Canterbury (Kent), 23.5.26, young, St. Edmund's School N.H.S.	Near where ringed, Nov., 1928, by E. S. Ryan.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
RR.352	Warwick Park (Warwick.), 23.5.27, nestling, by Miss J. M. and P. K. Chance.	Near Leamington (Warwick.), 23.3.29, by F. E. Craven Jones.
RR.1335	Staunton (Notts.), 13.3.28, ad., by Miss F. K. Staunton.	Sedgebrook, Grantham (Lincs.), 1.6.29, by S. Lee.
	MAGPIE (*Pica p. pica*).	
RR.3602	Canterbury (Kent), 17.5.28, young, by St. Edmund's School N.H.S.	Where ringed, 13.7.29, by E. A. Blomfield.
	STARLING (*Sturnus v. vulgaris*).	
Z.1739	Enfield (Middx.), 27.10.25, ad., by S. G. Poock.	Where ringed, 3.3.29, by Miss J. Atkinson.
Y.5704	Prestbury (Ches.), 25.11.26, ad., by R. M. Garnett.	Ditto, 20.1.29, by ringer.
X.3291	Carlisle (Cumb.), 20.1.27, ad., by J. N. D. Smith.	Near where ringed, 8.12.28, by J. S. Jopson.
X.3764	Ditto 17.7.27.	Where ringed, 22.4.29, by R. Burrill.
X.3766	Ditto 11.11.27.	Ditto, 19.2.29, by ringer.
X.3779	Ditto 28.11.27.	Ditto, 20.6.29, by J. L. Robinson.
X.3867	Ditto 21.12.27.	Ditto, 12.1.29, by G. Bell.
X.3854	Ditto 21.12.27.	Ditto, 19.3.29, by ringer.
X.3893	Ditto 29.12.27.	Ditto, 12.2.29.
X.3905	Ditto 30.12.27.	Ditto, 30.3.29, by Mrs. Witfield.
X.3964	Ditto 21.2.28.	Ditto, 16.4.29, by ringer.
Y.9400	Eton (Bucks.), 26.12.25, ad., by A. Mayall.	Ditto, Sept., 1928, by ringer.
Y.9422	Ditto 24.12.25.	Ditto, 22.12.28.
X.1015	Ditto 13.1.26.	Ditto, 9.1.29.
X.1021	Ditto 20.1.26.	Ditto, 14.1.29.
V.1379	Ditto 24.12.27.	Ditto, 24.12.28.
W.1404	Ullswater (Cumb.), May, 1926, young, by H. J. Moon.	Ditto, 10.1.29, by Canon A. D. Powell.
X.7882	Scone Estate (Perth.), 20.5.26, nestling, by Lord Scone.	Near where ringed, 21.4.29, by ringer.
D.4810	Prestwich (Lancs.), 21.6.26, ad., by G. Townsend.	Where ringed, 2.6.29, by G. H. Rowledge.
W.6875	Norwich (Norfolk), 23.5.27, young, by Lon. Nat. Hist. Soc.	Near where ringed, 30.1.29, by J. H. Bennett.
X.3008	Near Gt. Budworth (Ches.), 1.12.26, ad., by A. W. Boyd.	De Rijp, Holland, 19.12.28, by A. van Houwelingen.
W.5524	Ditto, nestling, 16.5.28.	Where ringed, 9.12.28, by ringer.
W.5548	Ditto ditto.	Ditto, twice Jan., 1929.
V.5624	Ditto. ad., 8.6.28.	Ditto, 16.2.29.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
U.7639	Ongar (Essex), 8.5.28, young, by St. Edmund's School N.H.S.	Stanford-le-Hope (Essex), 16.3.29, by A. C. Marriott.
T.1610	Ditto 16.6.28.	Near Llanelly (Carmarthen), 15.2.29, by E. Jones.
T.1669	Canterbury (Kent), 25.6.28, ditto	Where ringed, 26.12.28, by A. G. Atkins.
V.8927	Kingoldrum (Forfar.), 16.5.28, nestling by T. L. Smith.	Near where ringed, June, 1929, by J. F. Lunn.
U.6655	Near Chichester (Sussex), 11.5.28, nestling by W. D. Shaw.	Where ringed, 10.1.29, by ringer.
G.9971	Grayshott (Hants.), 2.7.28, nestling, Mrs. and R. O. Blyth.	Hindhead (Surrey), 28.1.29, by Mrs. J. Harris.
W.5813	Broughty Ferry (Forfar.), 18.12.27, by T. L. Smith.	Where ringed, May, 1929, by A. M. Scott.
	GREENFINCH (*Chloris ch. chloris*).	
A.9343	Near Gt. Budworth (Ches.), 24.2.24, ad., by A. W. Boyd.	Where ringed, 22.2.26; 21.2.29, by ringer.
E.9546	Ditto 28.1.27.	Sale (Ches.), 21.4.29, by R. Pearson.
F.1187	Ditto 19.5.27.	Where ringed, 16.10.28, by ringer.
F.8984	Ditto 14.2.28.	Ditto, 26.2.28; 23.1.29.
F.9008	Ditto 26.2.28.	Ditto, 4.1.29.
G.6695	Ditto, nestling, 19.7.28.	Ditto, twice Feb., 1929.
F.9852	Penrith (Cumb.), May, 1928, young, by H. J. Moon.	Maryport (Cumb.), Dec., 1928, by N. Murdoch.
	LINNET (*Carduelis c. cannabina*).	
F.7767	Bramshott Common (Hants.), 25.5.28, nestling, by Mrs. and R. O. Blyth.	Thouars (Deux Sèvres), France, 9.1.29, by S. Harpaille.
G.5280	Kirkconnel (Dumfries.), 18.6.28, nestling, for T. K. Craven.	St. Bees (Cumb.), 8.11.28, by J. McCourt.
	CHAFFINCH (*Fringilla c. cœlebs*).	
D.3679	Eton (Bucks.), 4.9.25, ad., by A. Mayall.	Where ringed, 3.9.28, by ringer.
G.2420	Holmwood (Surrey), 18.8.27, young, by H.B.P. Kingham.	Ditto, 27.2.29, by D. M. Laurence.
G.3401	Church Stretton (Shrops.), 5.4.28, ad., by W. A. Cadman	Ditto, 14.4.29, by ringer. Re-ringed G.3864.
G.3404	Ditto 6.4.28.	Ditto 24.4.29.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	TREE-SPARROW (*Passer m. montanus.*)	
G.6594	Near Gt. Budworth (Ches.), 18.6.28, young, by A. W. Boyd.	Near where ringed, 1.1.29, by S. Wright, per ringer.
	YELLOW-BUNTING (*Emberiza c. citrinella*).	
B.9062	Near Gt. Budworth (Ches.), 19.2.25, ad., by A. W. Boyd.	Where ringed, three times Feb., once March, 1925, by ringer and near, 10.2.29, by S. Wright.
D.3293	Ditto 16.12.25.	Ditto, March, June, 1926; twice April, twice Dec., 1928; twice Jan., 1929, by ringer.
	PIED WAGTAIL (*Motacilla a. yarrellii*).	
D.1808	Ullswater (Cumb.), July, 1925, young, by H. J. Moon.	Near Quimper (Finistère), France, 18.2.29, by E. Lebeurier.
G.8658	Appleby (Westmorland), June, 1928, ditto.	Vannes (Morbihan), France, 4.2.29, by J. Gemain.
G.8519	Penrith (Cumb.), July, 1928, ditto.	Trowbridge (Wilts.), 14,2,29, by Mrs. A. E. Little.
E.9789	Eton (Bucks.), 5.9.26, ad., by A. Mayall.	Where ringed, 24.12.28, by ringer.
	WILLOW-WARBLER (*Phylloscopus t. trochilus*).	
F.1323	Buxton (Derby.), 16.6.27, nestling, by A. W. Boyd.	Longbridge Deverill, Warminster (Wilts.), 20.5.29, by S. Williams.
	MISTLE-THRUSH (*Turdus v. viscivorus*).	
U.3883	Kirkconnel (Dumfries.), 29.4.28, nestling, by T. K. Craven and W. Bone.	Near Tweedsmuir (Peebles.), 9.4.29, by G. Forrest, junr.
	SONG-THRUSH (*Turdus ph. clarkei*).	
59550	Burnham (Bucks.), 26.5.23, nestling, by A. Mayall.	Maidenhead (Berks.), 27.1.29, by A. J. Bax.
Z.7608	Bridge-of-Earn (Perth.), 25.5.24, young, by A.H.R. Wilson.	Portumna (Galway), Ireland, 6.11.28, by J. Butler.
X.1942	Scone Estate (Perth.), 26.4.26, nestling, by Lord Scone.	Galway (Galway), Ireland, 4.1.29, by J. H. O'Connell.
Y.7794	Kirkmahoe (Dumfries.), 19.4.27, nestling, by W. and A. B. Duncan.	Near Nenagh (Tipperary), Ireland, 3.1.29, by J. and D. Gleeson.
W.3482	Penrith (Cumb.), April, 1928, young, by H. J. Moon.	Foynes (Limerick), Ireland, 26.1.29, by T. Madigan.
G.6122	Milnthorpe (Westmorland), 26.4.28, ditto.	Near Warrington (Lancs.), Jan., 1929, by J. Bellian

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
T.3167	Ullswater (Cumb.), July, 1928, ditto.	Near where ringed, 1.6.29, by J. Hyslop, per ringer.
Z.2399	Seaford (Sussex), 27.5.26, nestling, by J. F. Thomas.	Where ringed, 3.2.29, by A. E. C. Marnott.
W.9612	Near Chichester (Sussex), 26.4.27, young, by W. D. Shaw.	Ditto, 6.1.29, by H. Faith.
W.5656	Malvern (Worcs.), 23.6.27, nestling, by P. E. A. Morshead.	Near where ringed, 7.2.29, by ringer.
W.5600	Ditto 5.6.27.	Where ringed, 25.5.29, by W. A. Mann.
V.9612	Ditto 21.5.28.	Ditto, 21.11.28, by ringer.
W.5433	Near Gt. Budworth (Ches.), 18.12.27, ad., by A. W. Boyd.	Ditto, twice Jan., twice Feb., once March, 1929.
X.9925	Prestbury (Ches.), 18.12.27, ad., by R. M. Garnett.	Ditto, 4.11.28.
W.8362	Trevol (Cornwall), 21.4.27, young, by St. Edmund's School N.H.S.	Crafthole (Cornwall), 1.2.29, by J. Giddy.
U.7642	Near Canterbury (Kent), 28.4.28, ditto.	Dover (Kent), 12.3.29, by H. B. Garland.
U.7485	Colston Barrett (Notts.), 1.5.28, ditto.	Kinoulton (Notts.), March, 1929, by V. Hubbard.
U.2241	Knockholt (Kent), 26.4.28, young, for G. P. Pollitt.	Near, Rochester (Kent), 31.3.29, by W. Miskin.
U.6323	Near Henley-on-Thames (Oxon.), 12.5.28, young, by E. P. Chance.	Near where ringed, Jan., 1929, by A. Studd.
U.6329	Burchett's Green (Berks.), 11.6.28, ditto.	Where ringed, 28.7.29, by W. Croxford.
V.8482.	Carlisle (Cumb.), 2.5.28, nestling, by R. H. Brown.	Near Merthyr (Glam.), 28.1.29, by W. Southall.
V.9821	Church Stretton (Salop.), 19.4.28, nestling, by W.A. Cadman.	Near Holsworthy (Devon), 21.11.28, by G. Walter.
	RING-OUZEL (*Turdus t. torquatus*).	
U.3924	Kirkconnel (Dumfries.), 28.5.28, nestling, for T. K. Craven.	Mecheria, Algeria, March, 1929, by M. Rodriguez.
	BLACKBIRD (*Turdus m. merula*).	
94043	Dorney (Bucks.), 27.5.19, young, by A. Mayall.	Near Taplow (Berks.), 3.2.29, by H. T. Wilson.
W.7550	Burnham (Bucks.), 16.4.27, nestling, ditto.	Flackwell Heath, High Wycombe (Bucks.), 19.2.29, by G. Bryant.
U.7174	Ditto 23.4.28.	Cookham (Berks.), Nov., 1928, by Mrs. M. E. Whitaker.
56108	Cheadle (Staffs.), 3.3.24, ad., by J. R. B. Masefield.	Where ringed, 4.1.29, by ringer. Re-ringed F.8020.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
W.5430 (57711)	Near Gt. Budworth (Ches.), 19.2.24, ad., by A. W. Boyd.	Ditto twice Nov., 1925; three times Dec., 1927, re-ringed W.5430; 18.9.28; 15.2.29.
W.5437 (57732)	Ditto 2.3.24.	Ditto, 5.12.25; 21.12.27; re-ringed W.5437; twice Feb., 1929; 28.5.29.
Y.5404	Ditto 20.11.25.	Ditto, 21.12.27; 8.1.29.
W.5438	Ditto 21.12.27.	Ditto, 25.2.29.
W.5457	Ditto 22.4.28.	Ditto, 1.1.29.
Z.8513	Prestbury (Ches.), 17.4.25, nestling, by R. M. Garnett.	Ditto, 6.1.29.
Y.5719	Ditto ad., 7.11.26.	Ditto, 18.12.27; 20.4.29.
X.9955	Ditto 3.1.28.	Ditto, 29.12.28; 13.1.29.
X.4066	Pyrford (Surrey), 10.5.26, nestling, by Mrs. L. E. Taylor.	Near where ringed, May, 1929, by J. E. Briggs.
W.3605	Near Dundee (Forfar.), 28.4.27, nestling, by Miss E. C. Sharp.	Ditto, 26.6.29, by J. Bairner.
V.1567	Near Birkenhead (Ches.), 8.7.27, young, by H. West	Ditto, 1.6.29, by Miss E. Edwards.
Y.2705	Loch Stennes (Orkney), 10.6.27, nestling, by J. V. Stephens.	Kirbister (Orkney), 21.4.29, by J. Isbister.
W.5649	Malvern (Worcs.), 20.6.27, nestling, by P. E. A. Morshead.	Where ringed, Feb., 1929, by E. Duncan.
W.5650	Ditto ditto.	Ditto, 21.1.29, by ringer.
V.9634	Ditto 25.5.28.	Ditto, 18.1.29, by G. Ferris.
V.6833	Near Sidmouth (Devon), 26.12.27, ad., ditto.	Near where ringed, 9.1.29.
X.3991	Carlisle (Cumb.), 13.3.28, ad., by J. N. D. Smith.	Where ringed, 15.12.28, by ringer.
V.9111	Ditto 2.6.28.	Ditto, 23.4.29.
Z.6532	Ullswater (Westmorland). April, 1925, young, by H. J. Moon.	Near where ringed, 27.2.29, by ringer.
V.7294	Lytham (Lancs.), April, 1928, ditto.	Little Marton, Blackpool (Lancs.), 4.12.28, by Miss J. Cartmell.
T.3105	Kirkby Lonsdale (Westmorland), July, 1928, ditto.	Near Clonmel, Newcastle (Northumb.), mid-Dec., 1928, by J. W. Buggy.
U.8316	Langwathby, Carlisle (Cumb.), 3.7.28, ditto.	Killarney (Kerry), Ireland, 6.1.29, by D. MacMonagle.
G.7252	Torrance, near Glasgow (Stirling.), 3.7.28, young, by J. Bartholomew.	Mullagh (Meath), Ireland, early Feb., 1929, by H. H. S. Gerrard and *Meath Chronicle*.
V.2633	Kirkmahoe (Dumfries.), 25.4.28, nestling, by W. and A. B. Duncan.	Killarney (Kerry), Ireland, 2.12.28, by P. J. O'Leary.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
U.2842	Near Chichester (Sussex), 15.4.28, nestling, by W. D. Shaw.	Where ringed, 31.3.29, by R. H. Lass.
U.7501	Salisbury (Wilts.), 22.4.28, young, by St. Edmund's School N.H.S.	Where ringed, 24.6.29, by M. Mountford.
W.4466	Near Worthing (Sussex), 24.5.28, nestling, by Lon. Nat. Hist. Soc.	Ditto, 19.2.29, by ringer.
V.8546	Bowness-on-Windermere (Westmorland), 6.8.28, ad., by E. Cohen.	Ditto, 5.2.29, by A. Pedder.

REDBREAST (*Erithacus rubecula*).

D.3240	Near Gt. Budworth (Ches.), 19.11.25, ad., by A. W. Boyd.	Where ringed, 8.12.28, by ringer.
D.5074	Ditto 27.3.26.	Ditto, 27.2.27; twice Jan., 1929.
F.9044	Ditto 18.5.28.	Ditto, 30.12.28; 1.1.29.
D.7772	Prestbury (Ches.), 30.1.27, ad., by R. M. Garnett.	Ditto, 13.11.27; three times Dec., 1927; 2.12.28; twice Jan., 1929.
E.2468	Ditto 18.12.27.	Ditto three times, Dec., 1927; 13.2.29; 20.4.29.
E.2460	Ditto ditto.	Ditto, 20.12.27; 6.9.28.
B.4262	Bluntisham (Hunts.), 13.12.25, ad., by E. Peake.	Ditto, 27.12.28.
G.2384	Ditto 10.12.27.	Ditto, 9.10.28; 8.12.28.
E.8015	Ullswater (Westmorland), 1.1.27, ad., by H. J. Moon.	Ditto, 17.2.28; 3.2.29.
F.9906	Ditto, young, May, 1928.	Ditto, 27.2.29; 3.6.29.
G.8396	Ditto July, 1928.	Near where ringed, 17.1.29.
D.4587	Rusland, Ulverston (Lancs.), 25.8.28, by C. F. Archibald.	Where ringed, 2.1.29, by ringer.
F.9303	Bruton (Som.), 19.2.28, ad., for Lon. Nat. Hist. Soc.	Ditto, 23.2.28; 15.2.29.
D.6070	Cambusdoon, Alloway (Ayr), 18.5.27, ad., by B. D. Nicholson.	Ditto, 11.1.29.
D.9005	Dornoch (Sutherland), 7.7.27, ad., by E. Cohen.	Ditto, 4.3.29, by Mrs. E. C. Robichand.
F.2554	Scone Estate (Perth.), 24.2.28, ad., by Lord Scone.	Ditto, 18.12.28, by ringer.
F.1713	Near Chichester (Sussex), 14.1.28, ad., by W. D. Shaw.	Ditto, twice, Jan., 1929.
E.3093	Cheadle (Staffs.), 1.1.28, ad., by J. R. B. Masefield.	Ditto, 15.1.29.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
F.4712	Wokingham (Surrey), 8.6.28, nestling, by J. N. Fletcher.	Where ringed, Jan., 1929.
	HEDGE-SPARROW (*Prunella modularis*).	
E.2452	Prestbury (Ches.), 23.10.27, ad., by R. M. Garnett.	Where ringed, 10.11.27; 4.12.27; 8.11.28, by ringer.
F.9015	Near Gt. Budworth (Ches.), 4.3.28, ad., by A. W. Boyd.	Ditto, Oct.,Nov.,1928; 16.5.29.
F.2549	SconeEstate(Perth),13.2.28, ad., by Lord Scone.	Ditto, 27.12.28.
	WREN (*Troglodytes t. troglodytes*).	
F.6866	Canterbury (Kent), 30.5.28, young, for St. Edmund's School N.H.S.	Where ringed, 25.11.28, by Mrs. Pettyfer.
	DIPPER (*Cinclus c. gularis*).	
V.5547	Washgate (Staffs.), 19.5.28, ad., by A. W. Boyd.	Where ringed, 9.5.29, by J. Armitage.
	SWALLOW (*Hirundo r. rustica*).	
B.8273	Near Glasgow (Stirling.), 7.6.24, young, by J. Bartholomew.	Kirkintilloch (Dumbarton.), 2.5.29, by C. Campbell.
SS.336	Laugharne (Carmarthen.), 3.8.27, nestling, by J. F. Thomas.	St. Clears (Carmarthen.), 30.5.29, by the R.S.P.C.A., Carmarthen.
S.V.641	Ditto 6.8.27.	Near where ringed, 2.8.29, by ringer.
SV.719	Ditto, breeding adult, 16.8.27.	Where ringed, 14.8.28; 15.8.29. Nesting in same shed.
SV.737	Ditto 23.8.27.	Ditto, 27.8.28; 7.8.29, ditto.
SS.303	Ditto, nestling, 30.7.27.	Hofmeyr (Cradock), Cape Province, S. Africa, 28.1.29, by S. J. Smith and E. Marriott (*antea*, p. 62).
S.T.565	Near Gt. Budworth (Ches.), 13.6.27, nestling, by A W. Boyd.	Craddock, near Creighton, Natal, S. Africa, 3.1.29, by F. Hardman, per E. Marriott (*antea*, p. 62).
S.V.228	Ditto 22.6.28.	Lymm (Ches.), 9.5.29, by A. E. Poncia.
SS.405	Holmwood (Surrey), 24.6.27, nestling, by H. B. P. Kingham.	Rusper (Sussex), 20.7.29, by G. A. Hobgen.
SX.820	Eton (Bucks.), 15.6,28, nestling, by A. Mayall.	Near Maidenhead (Berks.), 4.6.29, by J. Tomlinson.
	MARTIN (*Delichon u. urbica*).	
SX.930	Bisham (Berks.), 13.7.28, nestling, by A. Mayall.	Where ringed, 11.7.29, by ringer.
SZ.801	Near Bath (Som.), 18.7.28, young, by C. R. Stonor.	Ditto, 21.7.29.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	SWIFT (*Apus a. apus.*)	
C.6281	Near Leamington (Warwick.), 13.7.25, ad., by P. K. Chance.	Where ringed, 8.7.26, by ringer.
E.6141	Ditto 8.7.26.	Ditto, 17.6.27; 15.6.29.
F.3985	Ditto 2.7.27.	Ditto, 14.5.28.
F.3999	Ditto ditto.	Ditto, 13.7.29.
G.1858	Ditto 11.6.28.	Ditto, 15.6.29.
H.2422	Ditto 16.7.28.	Ditto, 29.6.29.
F.4002	Ditto, nestling 2.7.27.	Ditto, 9.7.29.
SX.462	Shenfield (Essex), 1.7.28, ad., by R. E. J. Edwards.	Brentwood (Essex), 10.5.29, by T. C. Summers.
	KINGFISHER (*Alcedo a. ispida*).	
ST.918	Near Marlborough (Wilts.), 21.5.28, ad., by W. D. Shaw.	Near where ringed, 22.2.29, by W. V. Read.
	LITTLE OWL (*Athene n. vidalii*).	
75411	Malvern (Worcs.), 3.6.26, nestling, by P. E. A. Morshead.	Near where ringed, March, 1929, by F. Hopwood.
RR.5082	Ditto, 24.5.28, ad., by W. A. Cadman.	Ditto, 8.4.29, by A. Slater.
	TAWNY OWL (*Strix a. sylvatica*).	
28824	Weybourne (Norfolk), 10.5.28, young, by A. P. Meiklejohn.	Where ringed, 8.2.29, by P. Hudson.
28792	Near Marlborough (Wilts.), 13.5.28, nestling, by W. D. Shaw.	Near where ringed, early Dec., 1928, by B. E. Platt.
	MERLIN (*Falco c. æsalon*).	
72959	Blackstone Edge (Lancs.), 23.6.25, nestling, by A.W. Boyd.	Rochdale (Lancs.), 1.8.29, by by J. W. Dransfield.
71710	East Cheshire Hills, 3.7.27, nestling, by R. M. Garnett.	Near Leek (Staffs.), 6.7.29, by J. West.
	KESTREL (*Falco t. tinnunculus*).	
78181	Barton (Cambs.), 21.12.26, ad., by G. W. Thompson.	Where ringed, 5.7.29, by Mrs. J. Wick.
78195	Little Evenden (Cambs.), 7.6.27, young, ditto.	Scunthorpe (Lincs.), July, 1929, by T. Kenworthy.
RR.1724	Hindon (Wilts.), 30.6.27, nestling, by N. H. Joy.	Near Andover (Hants.), 27.2.29, by F. Bond.
RR.1904	Near Troutbeck (Cumb.), 7.7.28, nestling, by R. H. Brown.	Near where ringed, 31.12.28, by A. J. Johnson.
AA.637	Whittey Reed (Ches.), 11.6.28, nestling, by A.W. Boyd.	Ditto, 13.2.29, by ringer and S. Pickstone in *Daily Despatch*.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
RR.2305	Kinnoull Hill (Perth.), 4.6.28, young, for Perthshire N.H.S.	Near Grahamstone (Kinross), 9.2.29, by W. Telfer.
	SPARROW-HAWK (*Accipiter n. nisus*).	
RR.1850	HesketNewmarket(Cumb.), 19.6.27, nestling, by R.H. Brown.	Near Penrith (Cumb.), about June, 1929, by J. Cooper.
RR.1730	Bradfield (Berks.), 7.7.28, nestling, by N. H. Joy.	Near Newbury (Berks.), 22.7.29, by G. Clark.
	HERON (*Ardea c. cinerea*).	
103284	Lynedoch Almondbank (Perth.), 6.7.26, nestling, by Lord Scone.	Loch Leven (Kinross),14.1.29, by W. Telfer, per ringer.
103281	Ditto 1.6.28.	Near River Spey (Inverness.), April,1929, by P. Cumming.
103289	Ditto 6.7.28.	Loch Chon (Perth.), April, 1929, by J. McFarlane.
103302	Flowerdale,Gairloch(Ross.), 26.6.28, ditto.	Glenrinnes, Dufftown (Banff.) early Jan., 1929, by J. McDonald.
105801	Balmaha (Stirling.),23.5.28, young,by J.Bartholomew.	River Ruel, Glendaruel (Argyll.), 21.2.29, by T. L. Smith.
105802	Ditto ditto.	Killearn Estate (Stirling.), Jan., 1929, by C. W. Johnson, per *The Field*.
105291	Kirkconnel (Dumfries.), 26.4.28, nestling, by T. K. Craven and W. Bone.	Ballyclare (Antrim), Ireland, Feb., 1929, by G. W. Stelfox, and D. D. Dunbar, per *Irish Times*.
104636	Floriston (Cumb.), 5.5.28, nestling, by R. H. Brown.	Morayshire, 12.11.28, anonymous.
104639	Ditto ditto	Prestwick (Ayr.), 20.1.29, by P. Struthers.
104625	Near Uldale (Cumb.), 29.4.28, nestling, by R.H. Brown.	Greystoke, Penrith (Cumb.), 17.2.29, by T. Hayton.
105933	Ditto 1.7.28.	Keswick (Cumb.), March, 1929, by R. J. Williamson.
105835	Gainford (Durham),22.6.28, young, for G. P. Pollitt.	Near River Glen (Northumb.), 21.3.29, by G. W. Temperley for Miss L. Lyall.
105651	Eaton Hall, Chester, 18.4.28, young, by G. H. Franklin.	Wirral (Ches.), 13.1.29, by F. Piggott.
104587	Otmoor (Oxon.), 14.5.28, young, by W. A. S. Lewis.	Newborough, near Peterborough (Northants), May 1929, by G. H. Munns.
105257	Near Henley-on-Thames (Bucks.), 6.4.28, young, for G. P. Pollitt.	Thame (Oxon.), Feb., 1929, by L. Collett.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
105249	Near Henley-on-Thames (Bucks), 6.4.28, young, for G. P. Pollitt.	Near Redditch (Worcs.), 4.3.29, by L. F. Lambert.
105272	Ditto ditto.	Clonee (Meath), Ireland, 11.1.29, by B. B. Ferrar. (Dead some time.)
105749	Alder Shaw Wood, near Beckley (Sussex), 22.4.28, nestling, by D. D. Godfrey.	Commune de Famechon (Pas de Calais), France, 11.1.29, by Chevassus-Jouy, per A. Chappellier.
	SHELD-DUCK (*Tadorna tadorna*).	
AA.847	Tents Muir (Fife), 28.4.28, ad., for Lord Scone.	Ostfriesland, N. Sea coast of Germany. Reported Oct., 1928 (date not confirmed), by Mr. Klee, per J. Thienemann.
	MALLARD (*Anas p. platyrhyncha*).	
25551	Stranraer (Wigtown), 5.3.26, ad., by M. Portal.	Where ringed, Nov., 1928, by ringer.
AA.796	Ditto 28.2.28.	Ditto ditto.
AA.789	Ditto ditto.	Brändön (Luleå), N. Sweden, Autumn, 1928, by A. Sundström.
27538	Lynedoch, Almondbank (Perth.), 26.7.28, juv., for Lord Scone.	Huntingtower (Perth.) 15.12.28, by E. B. Thomson.
27534	Ditto ditto.	Near where ringed, 2.11.28, by ringer.
AA.915	Ditto 17.8.28.	Where ringed, 24.1.29.
5 birds.	Ditto ditto.	Near where ringed, Nov., 1928.
	TEAL (*Anas c. crecca*).	
76194	Longtown (Cumb.), 3.3.25, ad., by Sir R. J. Graham.	Carlisle (Cumb.), 11.12.28, by L. Atkinson.
78370	Ditto 21.11.25.	Ditto ditto.
76449	Ditto 25.8.25.	Where ringed, 20.2.29, by ringer.
76471	Ditto 3.9.25.	Half Morton (Dumfries.) 25.1.29, by R. Young.
78505	Ditto 27.2.26.	Newburgh on the Tay (Perth.), 29.12.28, by *The Field*.
78502	Ditto ditto.	Castlemilk (Dumfries.), 26.12.27, by Sir J. Buchanan-Jardine, per Lord Scone.
78501	Ditto ditto.	Where ringed, 20.2.29, by ringer.
78511	Ditto 5.3.26.	Ditto ditto.
78434	Ditto 12.1.26.	Tåkern, Sweden, 2.8.29, by N. Ehrnberg.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
78536	Longtown (Cumb.), 27.3.26. ad. by Sir R. J. Graham.	Eastriggs (Dumfries.), 5.4.29, by R. Robertson.
RR.5130	Stranraer (Wigtown.), 28.2.28, ad., by M. Portal.	Nacton Decoy, near Ipswich (Suffolk), 5.11.28, by T. Baker.
RR.5139	Ditto 20.3.28.	Skaarup, Veslos, Denmark, 27.8.29, by J. Pedersen.
	WIGEON (*Anas penelope*).	
73281	Loch Leven (Kinross.), 24.6.24, young, for A.H.R. Wilson.	Holy Loch, Firth of Clyde, 24.1.29, by A. Robertson, per W. Duncan.
AA.887	Ditto, 15.6.28, juv., for Lord Scone.	Where ringed, 2.11.28, by ringer.
	TUFTED DUCK (*Nyroca fuligula*).	
67529	Alnwick (Northumb.), 27.8.15, young, for Lord Wm. Percy.	Fallodon (Northumb.), by Viscount Grey of Fallodon. Went to Fallodon several years ago, remained and bred there, died Aug., 1929.
	EIDER (*Somateria m. mollissima*).	
104380	Badcall Islands (Sutherland), 23.1.27, ad., by Miss E. C. Sharp.	Stroma, Pentland Firth (Caithness), 9.3.29, by D. Smith.
	CORMORANT (*Phalacrocorax c. carbo*).	
104338	Badcall Islands (Sutherland), 24.6.26, nestling, by Miss E. C. Sharp.	Loch Stack (Sutherland.), 5.7.29, by J. Leobie.
104364	Ditto 26.6.28.	Castlepollard (Westmeath), Ireland, early Nov., 1928, by J. Halfpenny.
104362	Ditto ditto.	Isle of Muck (Inverness.), 1.1.29, by D. McKinnon.
104391	Ditto 5.7.28.	Slaech Water, Thurso River (Caithness), 3.12.28, by R. Munro.
104381	Ditto ditto.	Isle of Lewis (O. Hebrides), 19.1.29, by W. Macdonald.
104390	Ditto ditto.	Mouth of Tweed, 5.1.29, by R. H. Dodd.
104372	Ditto ditto.	Totnes (Devon.), 22.2.29, by M. P. Adams.
102338	Mochrum (Wigtown), 25.6.29, young, by Lord David Crichton-Stuart.	Ditto, 21.8.29, ditto.
102306	Ditto ditto.	Lough Neagh (Armagh), Ireland, 19.8.29, by G. Hanna.
102345	Ditto ditto.	Ramsey, Isle of Man, 31.8.29, by C. M. Webster.
102208	Ditto 22.6.29.	Dolgelley, N. Wales, 3.9.29, by G. Lee.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	SHAG (*Phalacrocorax a. aristotelis*).	
104281	Handa Island (Sutherland), 18.6.26, ad., by Miss E. C. Sharp.	Where ringed, 1.6.29, by W. Anderson.
104358	Ditto 25.6.28.	Raasay, Kyle (Inverness.), 5.11.28, by J. Gilnis.
101287	Edrachillis Bay (Sutherland), 6.7.27, nestling, by W. and A. B. Duncan.	Easdale (Argyll.), 7.12.28, by D. Campbell.
101294	Ditto ditto.	Near Plymstock (Devon.), 23.12.28, by R. W. Stansell.
5056 ?*	Scilly Isles (Cornwall), June or July, 1914, by H. W. Robinson.	Brest (France), 6.11.28, by Acting Brit. Consul.

* Fifth figure worn off. Numbers 50560 to 50569 were put on, some in 1914, some in 1925. Ring considered too worn to be 1925.

	GANNET (*Sula bassana*).	
101048	Bass Rock, Scotland, August, 1926, young, by H. W. Robinson.	Near Scarborough (Yorks.), 29.8.29, by W. J. Clarke.
104801	Ditto, June, 1927.	Between Groix and Glénans (Finistère), France, 29.12.28, by R. Legendre.
	WOOD-PIGEON (*Columba p. palumbus*).	
75380	Scone Estate (Perth.), 29.3.27, nestling, by Lord Scone.	Near where ringed, 8.4.29, by A. Boucher, per J. Ritchie.
RR.1194	Norton-on-Tees (Durham), 10.5.27, young, for G. P. Pollitt.	Stainton-in-Cleveland (Durham), 10.5.29, by T. Cass.
	TURTLE-DOVE (*Stretopelia t. turtur*).	
72947	Near Gt. Budworth (Ches.), 27.8.24, ad., by A. W. Boyd.	Where ringed, 20.5.26; 31.5.29. Re-ringed RR.4454.
73786	Ditto 10.8.26.	Ditto, twice July, 1929. Re-ringed RR.4469.
RR.4435 (73782)	Ditto 27.7.26.	Ditto 23.7.28; 29.6.29; 17.7.29.
	RINGED PLOVER (*Charadrius h. hiaticula*).	
U.9227.	Dulas (Anglesey), N. Wales, 15.8.28, young, by R.E.J. Edwards.	Moelfre (Anglesey), 15.1.29, by T. Griffiths.
	LAPWING (*Vanellus vanellus*).	
Z.2883	Glen Clova (Forfar.), 23.7.23, young, by H. G. Watson.	Kilworth (Cork), Ireland, 4.1.29, by P. Duggan.
Y.8907.	Blairgowrie (Perth.), 11.6.27, ditto.	Castlewellan (Down), Ireland, 2.2.29, by H. Armstrong.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
U.1843	Redgorton (Perth.), 9.5.28, juv., for Lord Scone.	Valdebimbre (León), Spain, 14.2.29, by N. Mancebo, per L. Busato, Brit. Pro-Consul. Published in *A.B.C.*, Madrid.
Z.4061	Hareshawmuir (Ayr.), 24.5.24, nestling, by E. R. Paton.	Near Clonmel (Tipperary), Ireland, 28.1.29, by R. O'Neill.
76553	Thornhill (Dumfries.), 2.6.25, young, for H. S. Gladstone.	Solway Firth, 26,12,28, by T. C. Fooks.
Y.6512	Caldwell (Renfrew.),26.6.25, young, by T. Kerr.	Mullingar (Longford), Ireland, mid-Jan., 1929, by W. R. Bull.
X.5649	Glen Friun (Dumbarton.), 21.5.27, ditto.	Tralee (Kerry), Ireland, 7.1.29, by J. Halloran.
Y.7718	Torrance (Stirling.), 15.6.25, young, by J. Bartholomew.	Near where ringed, 11.11.28, by J. Wilson.
X.7283	Killearn (Stirling.), 8.6.26, ditto.	Strathblane (Stirling.), mid-April, 1929, by R. Banchope.
X.7305	Torrance (Stirling.),21.5.27, ditto.	Tuam (Galway), Ireland, Feb., 1928, by L. O'Connell.
X.7387.	Ditto 22.5.27.	Bruff (Limerick), Ireland, 28.11.28, by B. Sheehan.
X.7374	Ditto 26.5.27.	Cecil (Tyrone), Ireland, 14.2.29, by G. Sheffield.
X.7375	Ditto 28.5.27.	Mappon (Gironde), France, 26.3.29, by M. Dousset.
X.3504	Glenisla (Forfar.), 9.6.26, young, by T. L. Smith.	Lough Neagh (Down), Ireland, 16.2.29, by J. A. Benington.
W.5740	Ditto 15.6.27.	Near Dungarvan (Waterford), Ireland, 27.12.28, by G. Kiely.
W.5727	Glen Clova (Forfar.), 6.6.27, ditto.	Eyrecourt (Galway), Ireland, Dec., 1928, by T. Daly.
W.5730	Near Kirriemuir (Forfar.), ditto.	Commune d'Orist (Landes), France, Feb., 1929, by M. Vergez.
X.7155	Carlops (Peebles.), 12.6.26, young, by R. G. Willan.	Dundrum (Down), Ireland, 19.2.29, by F. Pounds.
RR.4664	Aviemore (Inverness.), 10.5.28, nestling, by P. K. Chance.	Where ringed, 4.4.29, by W. Mackintosh, per *Daily Mail*.
X.3690	Near Leamington (Warwick.), 25.6.26, nestling, by Miss J. M. and P. K. Chance.	Templemore (Tipperary), Ireland, 9.2.29, by J. Delahunty.
W.9326	Rockcliffe Marsh (Cumb.), 10.5.27, nestling, by R. H. Brown.	Ballycotton (Cork), Ireland, 6.2.29, by R. H. Blake.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
V.3587	Rockcliffe Marsh (Cumb.), 18.5.27, nestling, by R. H. Brown.	Douglas (Cork), Ireland, 7.1.29, by E. R. Conron.
V.2258	Barnard Castle (Durham), 28.5.27, young, for G. P. Pollitt.	Dundalk (Louth), Ireland, 13.2.29, by G. P. Twibill.
V.2323	Hamsterly (Durham), 11.6.27, ditto.	Bagenalstown (Carlow), Ireland, 15.2.29, by R. Sheehan.
U.3594	New Barnard Castle (Durham) 16.6.28, ditto	Tuam (Galway), Ireland, 15.2.29, by S. Brown.
W.1979	Ulverston (Lancs.), 15.6.28, young, by H. S. Greg.	Cashel (Tipperary), Ireland, 20.2.29, by J. Dwyer.
U.5019	Penrith (Cumb.), May, 1928, young, by H. J. Moon.	Near St. Nazaire (Loire Inférieure), France, by J. M. Ricaud.
U.5304	Ingleton (Yorks.), ditto.	Palma (Alemtejo), Portugal, 15.1.29, by Senhora M. L. Posser de Andrade.
U.8960	Kirkby Lonsdale (Westmorland), June, 1928, ditto.	Rovigo (Venetia), Italy, 4.3.29, by C. Rizzato. (See Vol. XXII., p. 375.)
U.8686.	Sedbergh (Yorks.), ditto.	Near where ringed, March, 1929, by N. A. Leslie, per *The Field.*
77995	Near Reading (Berks.), 18.5.26, young, by N. H. Joy.	Damvix (Vendée), France, 22.1.29, by S. Arsene.
T.2529	Ashton (Som.), 12.6.28, young, for Clifton Col. Scientific Soc.	St. Augustin (Charente Inférieure), France, late Feb., 1929, by E. Duport.
	REDSHANK (*Tringa t. totanus*).	
X.2815	Hickling (Norfolk), 27.5.26, nestling, by A. W. Boyd.	Woodbridge (Suffolk), Feb., 1929, by N. Minter, Jnr.
V.3591	Rockcliffe Marsh (Cumb.), 18.5.27, nestling, by R. H. Brown.	Eastriggs (Dumfries.), 5.4.29, by R. Robertson.
W.1966	Ulverston (Lancs.), 15.6.28, young, by H. S. Greg.	Near Broughton-in-Furness (Lancs.), 26.2.29, by Viscount Cross.
	CURLEW (*Numenius a. arquata*).	
8436	GryffeReservoir(Renfrew.), 2.8.24, nestling, by Mrs. and R. O. Blyth.	Cleggan (Galway), Ireland, 11.11.28, by O. Newman.
RR.233	Cumdivock (Cumb.),, 12.7.26,nestling, by R. H. Brown.	Swinford (Mayo), Ireland, 11.11.28, by P. Mullory.
79924	Lynedoch, Almondbank (Perth.), 11.6.27, juv., for Lord Scone.	Ardara (Donegal), Ireland, 26.10.28, by D. Maloney.
U.1601	Ditto 30.6.28.	Naas (Kildare), Ireland, 24.1.29, by W. de Courcy-Wheeler.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
AB.473	Edenhall, Carlisle (Cumb.), 18.6.28, young, by H. J. Moon.	Meelick (Limerick), Ireland, 3.1.29, by W. Nix.
25724	Shap (Westmorland), June, 1928, ditto.	Near Sligo, Ireland, 17.8.28, by J. McLaughlin.
22334	Penrith (Cumb.), ditto.	Newtowncashel (Longford), Ireland, late Jan., 1929, by T. Skelly.
25680	Keswick (Cumb.), ditto.	Nr. Haverfordwest (Pembroke), 24.11.28, by P. Mathias.
25798	Lann (Dumfries.), July, 1928, young, for H. S. Gladstone.	Solway Firth, 15,11,28, by M. Peacock.

SNIPE (*Capella g. gallinago*).

V.3840	Tiree (Argyll.), 17.6.27, young, for G. P. Pollitt.	Where ringed, 8.12.28, by R. M. Hawker.
W.7924	Ditto, nestling, 18.5.27.	Rathmore (Cork), Ireland, 28.11.28, by D. O. Keeffe.
V.3167	Penrith (Cumb.), May, 1927, young, by H. J. Moon.	Near Lazonby (Westmorland) late Aug., 1928, by F. Whealleans.
U.4782	Ditto May, 1928.	Near Ballyporeen (Tipperary), Ireland, Nov., 1928, by J. Kearney.

WOODCOCK (*Scolopax r. rusticola*).

Z.3539	Dunsop Bridge, Clitheroe (Lancs.), 20.7.24, young, for B. J. Ringrose.	Garstang (Lancs.), 14.1.29, by G. Earnshaw.
Y.4313	Thornhill (Dumfries.), 7.5.25, young, for H. S. Gladstone.	Lockerbie (Dumfries.), 11.1.29, by R. Jardine-Paterson, per Lord Scone.
X.6952	Meigle (Perth.), 10.6.26, young, by C. W. Walker.	Drumkeen (Cavan.), Ireland, 5.12.28, by H. T. Malcolmson and *Belfast Telegraph*.
X.4002	Glenfaag (Perth.), 25.4.26, nestling, for Lord Scone.	Where ringed, 17.12.28, by N. J. Nasmyth, per ringer.
X.4738	Bowhill, Selkirk, 25.6.26, ditto.	Near where ringed, 3.6.29, by Ed. Gardiner & Sons Ltd.
W.7073	Ballathie (Perth.), 6.5.27, juv., ditto.	Where ringed, 9.11.28, by ringer.
V.1502	Ruthwell (Dumfries.), June, 1927, ditto.	Netherby (Cumb.), 31.12.28, by J. Westoll.
U.1271	Ditto 10.5.28.	Where ringed, April, 1929, by J. S. Kerss, per ringer.
U.1301	Arbigland (Kirkcudbright.), 26.4.28, ditto.	Cavens Estate, Kirkbean (Kirkcudbright), 29.12.28, by L. McEwen.
U.1300	Ditto 9.5.28.	Where ringed, 8.1.29, by A. du Cane.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
U.1781	Scone Estate (Perth.), 5.5.28, ditto.	Dervock (Antrim), Ireland mid-Feb., 1929, by J. A Montgomery.
V.6560	Ditto June, 1928.	Pitlandie, Moneydie (Perth.) 27.12.28, by T. H. Burrell per ringer.
V.9966	Abercaieny, Crieff (Perth.), 24.5.28, ditto.	Where ringed, Dec., 1928, by W. Drummond-Moray, per ringer.
U.1713	Balhomie, Cargill (Perth.), 17.5.28, ditto.	Near Land's End (Cornwall) 27.12.28, by W. J. Angove
V.6564	Balbeggie (Perth.), 22.6.28. ditto.	Erol (Perth.), Dec., 1928, by H. B. Melroy.
V.6565	Ditto 26.6.28.	St. Martin's Abbey (Perth.) 17.1.29, by C. M. Methuen.
V.6563	Ditto June, 1928.	Near Dundee (Forfar.) 12.1.29, by W. A. M. Cox.
U.1852	Redgorton (Perth.), 1.6.28, ditto.	Strathord (Perth.), 1.1.29, by R. E. U. Hermon-Hodge, per ringer.
U.1888	Coupar Angus (Perth.), 4.6.28, ditto.	Where ringed, late Oct., 1928, by N. G. Menzies, per ringer.
W.6001	Holker (Lancs.), 2.5.27, young, for A. Porritt.	Near where ringed, 8.12.28, by ringer.
X.6096	Alnwick Park (Northumb.), 22.4.27, young, for M. Portal.	Where ringed, 22.11.28, by ringer.
U.6527	Ditto, 30.4.28, young, for Duke of Northumberland.	Trickley Wood (Northumb.), 27.12.28, by A. W. Milburn.
X.6169	Witherslack (N. Lancs.), May, 1927, by H. W. Robinson.	Whitbarrow (Westmorland), 1.12.28, by H. D. Wilson.
U.5549	Near Lancaster (Lancs.), June, 1928, young, ditto.	Holker (Lancs.), 24.1.29, by A. Porritt.
W.9592	Thornhill (Dumfries.), 15.6.27, nestling, for H.S. Gladstone.	Near where ringed, 12.12.28, by R. H. Hooper.
77387	Lazonby, Penrith (Cumb.), 1928 (ring taken off a Rook).	Near where ringed, 20.10.28,
W.3812	Buchlyvie (Stirling), 1.5.28, young, by Sir S. Bilsland.	Near Aberfoyle (Perth.), Dec., 1928, by ringer.
	SANDWICH TERN (*Sterna s. sandvicensis*).	
V.5669	Blakeney Point (Norfolk), 30.6.28, young, by A. W. Boyd.	Near Benguela (Angola), W. Africa, reported early Jan., 1929 (date not confirmed), by A. M. Gaspar.
T.3797	Ditto ditto	Near Cap Matifou (Algiers), Algeria, 11.8.29, by D. H. Waterhouse. Published *Cont. Daily Mail.*

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	COMMON GULL (*Larus c. canus*).	
RR.6786	Near Kirkwall (Orkney), 28.6.28, nestling, by J. Knox.	Near South Shields (Durham), 18.11.28, by R. Smith.
RR.6796	Ditto 7.7.28.	Lochalne, Morvern (Argyll.), 27.1.29, by H. Earsman.
	HERRING-GULL (*Larus a. argentatus*).	
26930	Needles, Isle of Wight, 11.6.27, nestling, by Miss J. M. and P. K. Chance.	Near Broadstairs (Kent), Jan., 1929, by E. O. Scholefield.
	LESSER BLACK-BACKED GULL (*Larus affinis*).	
26422	Foulshaw (Westmorland), 7.7.27, young, by H. W. Robinson.	Preston (Lancs.), 13.5.29, by J. A. Speed.
AD.302	Rockcliffe Marsh (Cumb.), 4.7.28, nestling, by R. H. Brown.	Near Penrith (Cumb.), 10.4.29, by A. Stanton.
	RAZORBILL (*Alca torda*).	
RR.7810	Ramsey Island (Pemb.), 27.6.28, ad., by W. A. S. Lewis.	Brighton (Sussex), 4.8.29, by S. Saxon.
	PUFFIN (*Fratercula a. grabæ*).	
RR.402	Handa Island (Sutherland), 24.6.27, nestling, by Miss E. C. Sharp.	Egero Lighthouse, outside Egersund, Norway, 22.10.27, by J. L. Chaworth-Musters.
79583	Farne Islands (Northumb.), 23.6.28, ad., by Mrs. T. E. Hodgkin.	Where ringed, 30.6.29, by T. R. Goddard.
	MOORHEN (*Gallinula ch. chloropus*).	
28272	Near Gt. Budworth (Ches.), 30.7.28, young, by A. W. Boyd.	Near Widnes (Lancs.), 1.12.28, by F. Whitfield.

NOTES

RAVEN BREEDING IN A TREE IN DEVON.

During several visits paid to a small wood of fir and spruce four miles from the north Devon coast in March and April, 1929, I saw a pair of Ravens (*Corvus c. corax*) soaring over the wood and croaking. On May 1st I again went to this wood and the Ravens were so excited that I felt sure they had a nest there. My sons and I accordingly made a systematic search and found a dead young Raven under what appeared to be a Carrion-Crow's nest in a small fir some 22 feet from the ground (all the trees are wind-swept and none more than 25 feet high). On one of the boys climbing to the nest the old Ravens came down to within twenty feet croaking loudly. The nest contained two young birds almost ready to fly.

Several pairs of Ravens breed in the cliffs of the coast, and I think this pair had been disturbed and had resorted to the wood, using an old Crow's nest (probably added to) in the emergency. We have visited this wood for the last five years and have never before seen Ravens here.

Geoffrey Corlett.

[W. S. M. D'Urban, in the *Vict. Hist. of Devon*, I., p. 308 (1906) states that this species breeds "in trees in some woods in north Devon." Prior to the war I also received information of a pair which bred regularly in an old Scots pine in south Devon.—F.C.R.J.]

INCUBATION-PERIOD OF SKY-LARK.

On May 6th, 1929, I found on the island of Skye a nest of a Sky-Lark (*Alauda a. arvensis*) finished but with no eggs. On May 20th I was amazed to find the same nest had three nestlings able to hold their heads up strongly. Even supposing they had hatched that morning, this makes the incubation-period only twelve days.

Audrey Seton Gordon.

[Mr. W. Evans gave the incubation-period of the Sky-Lark as 13–14 days (from results in incubators), but Mr. A. M. Laws states that he found a nest with one egg on April 20th. Thirteen days after it contained three young birds, which appeared to be about twenty-four hours old. This seems to point to an incubation-period of about eleven days! Further observations on this point are desirable.—F.C.R.J.]

TWO PIED WAGTAILS USING SAME NEST AND CAUSES OF DECREASE.

On May 17th, 1929, I found at Felsted, Essex, a nest of a Pied Wagtail (*Motacilla a. yarrellii*) with one egg of its own and one egg of a Cuckoo (*Cuculus c. canorus*). As Wagtails have become very scarce here and Cuckoos are very abundant, I removed the Cuckoo's egg. On May 21st I revisited the nest and found the Wagtail sitting on eight eggs, five of her own and three of another Wagtail. I revisited the nest several times, but no more eggs were laid. I have never seen a case of two Pied Wagtails using the same nest before. As these were the only Wagtails in a considerable radius and there was an unlimited choice of nesting sites, the case is the more curious.

Pied Wagtails were very common in this neighbourhood until the Little Owl (*Athene n. vidallii*) began to make itself felt, but are now really scarce. I have often seen Little Owls watching the Wagtails feed their young and within twenty-four hours have found the nest empty. Over-victimization by Cuckoos has also had a good deal to do with the decrease. This summer since the Cuckoos started laying I have found nine Pied Wagtails' nests and every one had a Cuckoo's egg, while one had two. J. H. Owen.

[There are a good many recorded cases in which two Pied Wagtails have laid together in the same nest, and joint clutches varying from eight to eleven in number have been met with by several observers. (*Cf.* Notes by A. M. Low, *Zool.*, 1889, p. 391; J. G. Tuck *Zool.*, 1890, p. 221; J. Whitaker, *Notes on the Birds of Notts.*, p. 60, etc.) In two recorded cases the hens have been seen incubating at the same time, and one of these was from the same county (Essex) to which Mr. J. H. Owen refers (*cf.* W. B. Nichols, *Brit. Birds*, XVIII., p. 54). In an instance where twelve eggs were found in one nest one of the hens was said to be a Pied, and the other a White Wagtail (*Vict. Hist. of Herts.*, I., p. 199).—F. C. R. Jourdain.]

BLUE TIT BREEDING IN WREN'S NEST.

In April, 1929, I found in north Devon an unlined nest of a Wren (*Troglodytes t. troglodytes*) about six feet from the ground on a trunk of a tree. A few days later I caught sight of a white object just inside the entrance hole of the nest and when I went close a bird evidently not a Wren flew out. I watched and saw a Blue Tit (*Parus c. obscurus*) enter the

nest and the white of its forehead and cheeks was no doubt what I had seen. By June 15th there were in the nest seven young Blue Tits almost able to fly; we took some out to inspect them and make certain of the species. Unfortunately, shortly afterwards the nest was pulled down and remains (chiefly wings) of the young Blue Tits lay on the ground.

An examination of the nest showed that the outside was an ordinary moss Wren's nest. Inside it had been lined (evidently by the Blue Tit) with wool and hair. This had largely filled the cavity so that the Tit was sitting almost on a level with the entrance hole. When the young grew they had so little room and the entrance hole became so enlarged that one could see right in and this probably accounted for their fate.

There were plenty of normal nesting sites for the Blue Tits in the immediate vicinity. GEOFFREY CORLETT.

[The Blue Tit has been recorded as building in old nests of Greenfinch, Hedge-Sparrow, House-Martin, Thrush and Blackbird, but I have only one note of breeding in an old Wren's nest, by Mr. J. Steele Elliott in the *Zoologist*, 1914, p. 274, where no lining was added by the Tits.—F.C.R.J.]

DISPOSAL OF ADDLED EGGS BY TITS.

With regard to Col. B. H. Ryves's note on the disposal of addled eggs by the Blue Tit (*Parus c. obscurus*) I had a similar experience this year. On May 26th a nest of this species in a box contained six nestlings and three addled eggs, and whilst watching the birds feeding the young on June 4th, I saw the female leave the nesting-box with one of the eggs in her bill; this was repeated on the same afternoon.

On examining the nest after the young had left, I found the third addled egg down the side of the nest out of sight.

L. H. DAGLEY.

TWO RED-BACKED SHRIKES LAYING IN SAME NEST.

ON June 13th, 1929, at Marlborough, Wiltshire, I found a female Red-backed Shrike (*Lanius collurio*) sitting on no less than ten eggs. On further investigation the eggs clearly divided themselves into two lots of five, the markings on one lot being dark and distinct, and those on the other being rather blurred and much paler. No male was ever seen, but two females were seen together on several occasions. The eggs were ultimately removed and proved infertile. Thus there seems to be no doubt that it was a case of two females laying in one nest, without a single male. A. L. W. MAYO.

ABNORMAL CLUTCHES OF BLACKBIRD AND REED-BUNTING.

On June 6th, 1929, near Harrow-on-the-Hill, Middlesex, we found a nest of a Blackbird (*Turdus m. merula*) containing a single young one—quite three days old—and six addled eggs, on which the female was sitting. Clutches of seven have (according to the *Practical Handbook*) been only twice previously recorded.

On June 8th we found the nest of a Reed-Bunting (*Emberiza s. schœniclus*) which contained the extraordinary number of ten eggs. Unfortunately, four eggs were taken as they were about to hatch, but three out of the remaining six were successfully hatched and the young reared.

Several other observers saw this nest, and all suggested that two hens had contributed to the clutch. This certainly seems the only reasonable explanation, for the previous highest number recorded appears to be seven.

T. H. Harrisson.
W. R. Harrisson.

[I have now notes of three other clutches of seven eggs of Blackbird in addition to that recorded above.—F.C.R.J.]

GREAT SPOTTED WOODPECKER DESTROYING NESTS AND EATING YOUNG OF HOUSE-MARTINS.

At Coker Court, near Yeovil, Somerset, the residence of Lt.-Col. G. W. Heneage, there is a large kitchen garden surrounded by a stone wall about 20 ft. high, on the top of which are projecting tiles. Under these tiles a colony of some thirty-five to forty pairs of House-Martins (*Delichon u. urbica*) has been established. Col. Heneage was particularly anxious to see the Martins preserved, and gave orders that they and their nests were not to be molested.

After the Martins had begun to hatch this year (1929), several nests were discovered with large holes in the bottom, and the contents missing. More nests were discovered thus destroyed, until, anxious to discover the reason, Col. Heneage ordered two of his gardeners to keep watch on the nests. This soon disclosed the fact that a pair of Great Spotted Woodpeckers (*Dryobates m. anglicus*) were destroying the nests and eating the young Martins—or at least portions of them. The procedure was to fly to a nest and, clinging on to it, hammer it with their bills until part of it broke away. In the case of those nests containing young, the young sometimes fell out in a heap on to the ground below, or else were

dragged out of the nest by the Woodpeckers. They were then taken one at a time (either from the nest or the ground) on to the branch of a pear tree and hammered to pieces, the breast being the chief part which was then eaten. This procedure was watched on many occasions by the gardeners, who set a gin, baited with the remains of a young Martin, in order to catch the Woodpeckers.

So far as I could make out when I visited the place and saw the gardeners some time later, some twenty-seven nests were destroyed. In the case of nests containing eggs, if the eggs were fresh, they were broken and left on the ground below the nests, but the contents of those eggs which contained a well-formed embryo were eaten. Allowing an average of four eggs for each nest, quite 100 eggs or young Martins must have been destroyed in about a week. The majority of nests certainly contained young. A nest in the middle of the largest group which was occupied by House-Sparrows (*Passer d. domesticus*) was left untouched.

This work of destroying the Martins' nests went on for about a week, until, on June 26th, the female Woodpecker was caught in the gin which the gardeners had set. This bird was given to Mr. F. C. Drake, of East Coker, who at once brought it in to me and informed me of what had taken place. I sent it off to Mr. H. F. Witherby, and asked him to examine the stomach contents, which he has kindly done, with the result that what was witnessed by the gardeners at Coker Court is further confirmed.

The male Great Spotted Woodpecker was seen on several occasions after the female was caught, but did not attack any more nests. Both birds had previously been seen at work; they were breeding in a dead stump at the top of a large oak tree a short distance from the garden.

In the note on the food of this Woodpecker, the *Practical Handbook* states: "quite exceptionally young birds," so the behaviour of this pair seems to be quite out of the ordinary.

C. J. PRING.

[The gizzard of the Woodpecker sent by Mr. Pring contained a number of pieces of small feathers. Several portions had blood quills and were evidently parts of growing feathers, such as would be found on a feathering nestling. All the feather remains were white and must have been taken from the underparts of the Martins. There were no parts of bones, but some nearly digested matter which might have been flesh and also a number of beetle remains. These latter I

submitted to Dr. N. H. Joy, who kindly informs me that they were of a beetle of the genus *Phyllobius*. Dr. Joy has found this beetle in the gizzard of a Martin. In the Woodpecker's gizzard Dr. Joy also found a few small remains of *Sterophteryx hirundinis*, a parasite very common to Martins in their nests. It therefore seems probable that the whole contents of the Woodpecker's gizzard was derived from eating the Martins.—H.F.W.]

SPANISH GREAT SPOTTED WOODPECKER EATING YOUNG BLUE TITMICE.

In my note on the food of the British Great Spotted Woodpecker in the *Practical Handbook*, the reference to young birds being quite exceptionally taken was based on an observation by Mr. J. H. Gurney in the *Zoologist* for 1890, p. 435. In this case an immature Great Spotted Woodpecker contained remains of two or more young birds, which in Mr. T. Southwell's opinion were those of a Titmouse, probably the Blue Tit.

Since writing the above, I have also seen a letter from Mr. S. Frost, which appeared in *Country Life*, July 2nd, 1927, p. 34, in which he states that a "Spotted Woodpecker" was seen to take a young Sparrow from a nest, killing it and tearing it to pieces.

While in the Almoraima cork woods with Major W. M. Congreve on May 9th, 1890 we saw a male Spanish Great Spotted Woodpecker (*Dryobates m. hispanus*) go to a Spanish Blue Tit's nest in a cork oak, from which he extracted a big unfledged young bird. He then flew with it to an adjacent tree and hammered it about for a few minutes and then disappeared with it in the direction of a wooded swamp where probably there was a nest. On examing the Tit's nest we found the lining partially pulled out and disarranged, but there were still some young. F. C. R. JOURDAIN.

WRYNECKS REARING TWO BROODS.

A PAIR of Wrynecks (*Jynx t. torquilla*) took possession of a bird-box in my garden at Eton in April, 1929. The clutch of ten eggs were all hatched out and I ringed the young on June 17th and they left the box at different intervals, the last on June 30th or July 1st.

The parent birds again became noisy, calling especially in the early mornings. On July 13th there were four eggs in the box, and subsequently the total was seven. Six young were

hatched, and I ringed this second brood on August 7th, but, being compelled to leave home, I do not know on what date the young flew.

As text-books proclaim the Wryneck as single-brooded, perhaps this exception is worth recording. A. MAYALL.

[Prof. J. H. Salter recorded a very similar instance of Wrynecks rearing two broods in a nesting-box during the warm summer of 1921 (see *B.B.*, XVI, p. 219) and suggested that the unusual weather conditions were the cause. It can hardly be a mere coincidence that the next recorded case should be during the present abnormally fine summer.—F.C.R.J.]

AMERICAN BITTERN IN SOMERSET.

WHILE visiting the Somerset levels with some friends on May 26th, 1928, I noticed feathers protruding from the rank grass in a silted-up ditch near a marshy enclosure known as Ten Acre Common, near Catcott. They proved to be a wing and other portions of a Bittern, which I felt confident was the American species. On sending the remains to Dr. P. R. Lowe he identified them as *Botaurus lentiginosus*. I have briefly recorded this occurrence in the *Report on Somerset Birds*, 1928, p. 8. Possibly a small party of these birds visited the south-western counties in the late autumn of 1927, as one was reported as shot near Bodmin, Cornwall, on November 28th, and another is said to have been seen on December 30th.

Many years ago I saw two American Bitterns stuffed and wired in the cottage of a bird-stuffer named Haines at Glastonbury which had been obtained locally. I examined them on several occasions, but have failed to trace them. These are the birds referred to by the Rev. F. L. Blathwayt in the *Victoria Hist. of Somerset*, I., p. 154, as having been shot in December, 1897. STANLEY LEWIS.

NESTING OF RED-BREASTED MERGANSER IN DUMFRIESSHIRE.

THE finding of a nest of the Merganser (*Mergus serrator*) on the River Annan may have some bearing on Mr. H. S. Gladstone's 1926 nesting record of two pairs of Goosanders for the same river (*Scot. Nat.*, 1926, p. 140, and see *Brit. Birds*, XX., p. 252).

In the years 1924–25 I was informed that two pairs of Mergansers were frequenting the river in the parish of Hoddom and to all appearances nesting there. The only result of a

search made by my friend, Mr. R. L. Lockerbie, and myself in June, 1926, was a momentary glimpse of what was thought to be a female Merganser which disappeared under water when beaten from cover.

On June 10th, 1928, I was more fortunate in that my search ended in the flushing of a female Merganser from eight incubated eggs which, with the nest and site, were typical of the species. Other than the sitting bird I saw two females on the water and had a distant view of a possible male.

The two pairs of Mergansers coincide in number with the Goosanders recorded and I have reason to believe that the locality is the same in both cases.

The nesting of the Merganser so far south is interesting and there does not appear to be any previous record for Dumfriesshire. ERNEST BLEZARD.

LITTLE GREBES DIVING WITH THEIR YOUNG.

MR. G. F. M. SWINY (*ante*, p. 100) has not quite grasped what I meant by "under the old bird's wing," and I am glad that he has given me the opportunity of making the matter a little more plain. In *The Birds of the British Isles* necessary economy of words prevented full explanations. I was thinking of the observations of Mr. Bryan Hook, quoted by Seebohm, where he saw or believed that he saw the young birds scramble under the wings, which were held up for this purpose. If Mr. Hook was not mistaken and the young were actually taken *under* the wing, I imagine that this procedure is exceptional. What Mr. Swiny saw is exactly what I have often seen with Great Crested Grebes (*Podiceps c. cristatus*), the young held on the back of the parent "covered by her arched wings," where they could be held in position so long as the wings were raised and pressed back. I entered more fully into the matter in *Bird Haunts and Nature Memories* (p. 77) when describing the Great Crested Grebe.

"It has often been stated that the parent bird, if danger threatens, takes the young down beneath its wings, but I have never seen this done. When the young is on the back it can be held in place by the paternal or maternal scapulars or wings, but as a rule the little one, when not so held, comes bobbing up——"

It would be interesting to know if any one else has seen a Grebe diving with the young held beneath the wings against the flanks, and not cradled on the back between the slightly raised wings. T. A. COWARD.

MR. SWINY's account of a Little Grebe diving with its young under its wings (*antea*, p. 100) has sent me to an old notebook for an incident that bears on the subject. On the river

Gade at Waterend, near Hemel Hempstead, on the evening of August 11th, 1917, a Little Grebe was calling excitedly near a nest in which were two stained eggs. Presently I noticed two very small chicks swimming a few feet away from the nest. A few minutes later the old bird swam up to the young ones, which climbed up on to its back under its raised wings. A sudden movement on my part caused the old bird to flounce under the water with the young still on its back; they were not shaken off in the act of diving. The old bird came up again some yards away, and presumably the young ones were still under its wings, although I could not see them; they certainly did not come to the surface independently anywhere between the spot where the old one dived and the place where it came again to the surface.

Bryan Hook's circumstantial story in Seebohm's *History of British Birds* of the Little Grebe diving with young on its back should carry conviction, as should Proctor's account, written so long ago as 1837, of similar behaviour on the part of the Slavonian Grebe (*Podiceps auritus*) in Iceland. It would be interesting to know whether the habit obtains, and if so to what extent, with other Grebes. Hundreds of times have I seen Great Crested Grebes (*P. c. cristatus*) that were carrying young on their backs dive, but the young were always shaken off as the old bird plunged; and, although here my experience is much more limited, the Black-necked Grebe (*P. n. nigricollis*), too, always shakes off the chicks as it goes under. CHAS. OLDHAM.

[It seems to us probable that this is a question of terms rather than facts. It does not seem to us necessary to suppose that Bryan Hook by "scrambled under the wing" (which he uses in two places in his narrative) meant that the young were held between the flanks and the primaries of the old bird, as Mr. Coward appears to suggest in his last sentence. Hook's use of the word "scrambled" rather implies that the young got above the flanks on to the back under the proximal part of the wing where they would be held by the secondaries, or even partly by the wing-bones, and might be said to be "under her wings."—EDS.]

OYSTER-CATCHER BREEDING INLAND IN WESTMORLAND.

IT may be worth recording that this year (1929) a pair of Oyster-Catchers (*Hæmatopus o. ostralegus*) nested at Killington Reservoir. Previously the bird has been seen inland in Westmorland on passage only, and this is the first record, so far as I know, of its breeding inland in Westmorland.

E. U. SAVAGE.

IMMIGRATION OF CROSSBILLS.—We have received the following further reports of the appearance of Crossbills. For previous notes on the subject see pages 69 and 101.

LINCOLNSHIRE.—Eleven were seen by Mr. J. S. Reeve near Lincoln on July 27th, since which he has seen from twenty to thirty up to August 22nd.

CAMBRIDGESHIRE.—Five were reported by Mrs. M. D. Brindley near Fulbourn on September 9th.

KENT.—Three were seen by the Rev. J. R. Hale at Boxley, near Maidstone, on August 14th.

HERTFORDSHIRE.—Several small parties have been seen by Dr. W. D. Bedford (as we are informed by Mr. T. H. B. Bedford) near Hertford from July 17th to date of writing (September 9th).

BEDFORDSHIRE.—Two were noted by Mr. O. G. Pike at Leighton Buzzard on July 27th.

STAFFORDSHIRE.—A flock of twenty or more was seen by Mr. F. Fincher on Enville Common in the south of the county on July 21st.

IRELAND.—During a visit Mr. C. Oldham noted the following: Co. WICKLOW.—Twenty in Scots fir near the sea at Arklow from August 6th to 12th (they were said to have been there at least three weeks previously). Six in the Ow valley on August 8th. Several parties about Lough Tay and Lough Dann on August 12th. Co. WEXFORD.—Small party at Rosslare on August 14th. Co. CARLOW.—Four at Clonegall on August 9th. Co. CORK.—A few at Glengariff on August 18th (some were said to have been there since July 2nd).

PIED FLYCATCHER IN DEVONSHIRE.—Mr. A. L. W. Mayo informs us that he saw a male Pied Flycatcher (*Muscicapa hypoleuca*) hawking for flies near Colyton on April 15th, 1929. The bird was evidently on passage. The species is seldom recorded from Devonshire.

YOUNG CUCKOO IN BLACKBIRD'S NEST.—The Rev. E. Peake informs us that on June 4th, 1929, he found in his garden near St. Ives, Huntingdonshire, a Cuckoo (*Cuculus c. canorus*) a day or two old in the nest of a Blackbird (*Turdus m. merula*). By June 10th the bird was feathered, but by the 18th it had disappeared.

BITTERN IN SOMERSET IN MARCH.—Mr. S. Lewis informs us that on March 23rd, 1929, near Shapwick, he saw a Bittern (*Botaurus stellaris*) alight in a swampy field in which were growing much sedge and bog-myrtle. As the bird stood still after alighting, Mr. Lewis had plenty of opportunity to examine it with his binoculars. He visited the bogs in the neighbourhood throughout the breeding-season, but did not again see the bird.

REVIEWS

Wild-Fowlers and Poachers. Fifty Years on the East Coast. By Arthur Henry Patterson. Methuen. Illustrated. 15s. net.

THE veteran naturalist of Breydon has collected together in this book a wonderful array of yarns, mostly well told in the vernacular. They are all concerned with Breydon and the adventures and exploits, humorous and otherwise, of its old-time wild-fowlers and eel-men, and although the human interest predominates, birds, especially wild-fowl and waders, usually form important features of the stories. Besides this, we have a list of Breydon birds, which, though annotated, might have been provided with more essential details, and a section of the log of Jary, the watcher, which gives an idea of the character and number of Breydon's present-day birds.

Mr. Patterson writes chiefly of the past and tells us that the old gunners have no real successors. Marshlands have been drained, and the mud-flats of Breydon have grown up so that wild-fowl food has been restricted and free navigation for the punt made impossible. Besides these great restrictions there are the Wild Birds Protection Acts and fowlers are no longer free to shoot and sell to collectors and dealers such birds as Knots in summer, nor Spoonbills and Avocets at any time and so supplement their meagre living as they did in the past. Fifty years ago rarities were quickly spotted and chased by these professional gunners, though sometimes they escaped notice, and, like the Mediterranean Black-headed Gull, were shot by chance (pp. 210–11). Some of the adventures of those old-time wild-fowlers in weather of exceptional severity make thrilling reading. "Old Stork" Thacker's wonderful, but risky, shot, "about fifty years ago," from the ice with his punt-gun roughly mounted on a rickety sledge, is stated to have produced no less than 172 head of "fowl" (p. 157).

Unfortunately, the book is provided with an almost useless index, which is a pity, because, as we have mentioned, there is a good deal worth reading about birds amongst the gunners' stories. Some of the author's pen and ink drawings are rather too rough to be suitable for book-illustration, and we wonder if he has ever seen in life a pair of Great Crested Grebes (with a brood) in the attitudes depicted in the drawing on page 208 and reproduced prominently on the paper jacket.

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THE BEHAVIOUR OF STARLINGS IN WINTER.

An Investigation of the Diurnal Movements and Social Roosting-habit.

BY

V. C. WYNNE-EDWARDS, B.A.

1. Introduction.

It is well-known that throughout the winter Starlings (*Sturnus v. vulgaris*) generally roost in great companies, often hundreds of thousands together. Writers on this subject have been principally interested in the wonderful sight presented by the huge flocks as they manœuvre above their roost at nightfall. Kirkman (11) gives an admirable description of this, and to his work reference may be made for a general account of the roosting-habit. "Seen at some distance," he says, "(the flock) has almost the appearance of being itself a living creature—some gigantic amœba floating in space." Hudson (9) says of the scene that it is "certainly one of the finest sights that bird-life presents in England." The habit is not confined to the Starling; in fact, there are few common species of birds in which it is not found, though generally on a smaller scale, and in certain cases several species will consort together.

Campbell (1, 2) gives an account of a roost on Cramond Island in the Firth of Forth, and Mac Reynolds (13) of one near Doylestown, Pa., U.S.A. Campbell was able to make observations at all seasons of the year on the times of daily arrival and departure. Forrest (8) attempted a regional survey of roosts in Shropshire, and concluded "that the average distance of the roosts from one another can scarcely exceed eight miles."

The present investigation might be divided into two parts. Under one head would fall the actual survey of roosts, the estimation of numbers, and the consequences of roosting upon timber, reeds and vegetation; and under the other the diurnal distribution of the birds from the various roosts, or what may be called the "feeding-areas," and the phenomena associated with flying to and fro. Probably no British bird approaches the Starling in its far-reaching effects on agriculture, and for this reason the study of the feeding-areas seems important. The bird is valuable to the farmer as a voracious insect-feeder, but at the same time harmful to fruit-growers in some districts. It is one of several species disseminating the gapes-worm, which attacks poultry and

Pheasants, and because of its great numbers the principal one. Farmers in this district believe it to spread Coccidiosis among poultry, and have suggested that it carries Foot and Mouth disease; and although these suppositions are probably erroneous, a knowledge of its range of movements is clearly desirable.

The Starling is increasing both in numbers and in geographical range, particularly in the British Isles. This necessitates a greater supply of food, and new sources are being tapped; a purely insectivorous diet may be forsaken for one of fruit or grain. By its great adaptibility, the Starling is able to oust other species by competition for food and nesting-sites. Besides being an omnivorous ground-feeder, it may occasionally be seen hawking for flies on the wing. It nests in all kinds of places from rocks on the sea-shore to human habitations. In short, the Starling is a highly successful species, and the study of its changing range and habits is valuable from a biological point of view.

So far as can be ascertained, the roosting-habit is to be observed wherever the Starling winters. It lasts through the autumn and winter, and some non-breeding birds may continue to occupy the roost throughout the year. In this investigation as large an area as possible, about 3,000 square miles in Devon and Cornwall, has been surveyed. I wish particularly to thank Mr. A. H. Machell Cox, M.A., M.B.O.U., for his invaluable help, without which it would have been quite impossible to cover half so great an area. He has travelled more than two thousand miles in making the survey. I am indebted to many other people, but especially to the editors of *British Birds*, for much helpful criticism and information on certain points, and to Messrs. F. R. Horne, B.A., and H. G. Hurrell, M.A., M.B.O.U., for survey material.

2. The Starling in Devon.

Until the middle of the last century the Starling was just such a winter visitor to the west of England as the Redwing and Fieldfare are at the present time. Polwhele (13), in 1797, writes: "Starlings, I believe, never breed in this county . . . but thousands of them visit us in winter, and then only are gregarious." D'Urban and Mathew (7) give an account of its gradual invasion of the west as a breeding bird. Already in 1830 "Dr. Moore remarks on this bird: 'common here (Plymouth) in winter; arriving in October, and departs in

spring; but some of them have been known to breed at Haldon. . . .' " About 1850 "the Starling was looked upon as only a winter-visitor to north Devon, and we can well remember when the early appearance of the flocks in autumn was considered a sign of severe weather."

The greatest increase, however, has come since the beginning of this century, and it is still in progress. Mr. W. Walmesley White recently wrote (19) that "the last few years have witnessed such an increase of Starlings, both as residents and as winter immigrants, as almost passes credibility," and later, "in this cold weather (February, 1929) it is no exaggeration to say that the Starling in this neighbourhood appears to outnumber all other species of birds together."

The cause of this increase and extension of range is of primary importance. Changes in the British avifauna of a similar character are not rare; the Turtle-Dove (*Streptopelia t. turtur*) is at present extending its range northward, the Tufted Duck (*Nyroca fuligula*) westward, and the Fulmar Petrel (*Fulmarus g. glacialis*) southward; but the scale of these changes is very much smaller, both from an economic and biological standpoint. They are, however, equally obscure in origin. Faunal changes may often be traced to human interference. The larger birds of prey have been pushed northwards and westwards by the advance of agriculture and game preservation. The Kite (*Milvus m. milvus*) once generally distributed, is reduced to a few pairs; the Raven (*Corvus c. corax*) has become wild and solitary; and the Buzzard (*Buteo b. buteo*) is no longer found in the south-east and east of England.

Coward (5) has suggested that the Starling is following in the wake of man's advance. "Man," he writes, "has influenced the status of the Starling. His cultivation has supplied it with an abundance of invertebrate food, his game preservation has lessened the numbers of its predacious foes, his woods and houses provided accommodation for nests. . . ." But this explanation is not completely satisfactory, because the increase has come about principally in the last fifty years. In the south-west of England it is impossible to observe any alterations in agricultural conditions during this period which could account in the smallest degree for the increase. The Starling feeds in pastures hundreds of years old; the spread of human occupations has been smaller than elsewhere. The increase has not followed closely the advance of agriculture. The change in agricultural conditions has indeed

rendered the increase possible, but it has not caused it directly. The Starling has spread into country already suited to its habits, and with the rapidity characteristic of species introduced into virgin lands. The phenomena in England and America, where the Starling was introduced in 1890, are really identical.

In Devon and east Cornwall the same series of geographical and ecological conditions obtain. Their range is very great, but exceedingly simple in arrangement. Ornithologically there are three principal divisions: the coasts and estuaries, the peripheral pasture and agricultural zone, and the central moorland areas of Dartmoor Forest and Bodmin Moor. The clear separation of these types of country is important to the ecological study of birds, and south Devon may be taken as characteristic. In Dartmoor there are about 200 square miles of open undulating heather-moor lying above 1,000 ft. contour. From this the rivers radiate outwards, and where they leave the moor there is a narrow broken ring of forest, principally oak-scrub. In their deep wooded valleys the rivers run across the cultivated zone (for from six to twelve miles on the south side) and reach the sea in long estuaries, which are in reality drowned valleys. The coast is for the most part high and rock-bound.

Starlings are not found in the moorland areas. They penetrate up the valleys as far as there are pastures in which to feed. Throughout the agricultural zone they are very numerous, but the population is most dense in the towns. Such is the condition in the daytime for the six winter months during which the roosting-habit lasts.

The migrations of this species are complex, and not fully worked out. Movements of varying magnitude take place every month of the year. Birds native to the county remain throughout the winter. The southward migration observed by Eagle Clarke (3) at the Eddystone Lighthouse in October appears to involve only passage-migrants, since there is only one case known of a British-bred and marked bird being recovered on the Continent, notwithstanding the large numbers ringed in this country. In winter the numbers are increased to perhaps four times their summer value by immigrants from other parts of the British Isles and the Continent. Starlings ringed in Mecklenburg (one) and Latvia (two) have been recovered in winter in Devon and Cornwall (Thomson, 15), and one ringed at Rossitten (16.7.27) recovered at Beer, Devon (19.12.27) (20).

The influx of winter immigrants is continued throughout September and October. During severe weather further movements may take place, and were observed on a considerable scale in February, 1929. On the 12th and 14th birds totalling many thousands passed westward over Plymouth Hoe between 9.0 and 11.0 a.m., following the coast-line very closely. These immigrants leave during the second and third weeks of March.

3. Methods of Investigation.

Except in cases (S, E, T, M)* where information was sent of the position of roosts, they were located by one of two methods, dependent upon the means of transport available. The Plymouth district was first investigated. On a number of days during December observations were made successively at places, some miles apart, of the direction of flight of the flocks at sunset. In travelling to or from their roosts, the birds fly strongly and generally along a straight course, though they will not cross large tracts of moorland. It is thus exceedingly easy to obtain an approximate bearing of the roost from the point of observation ; and by obtaining a number of bearings (two are usually insufficient) the position of the roost can be located on a map. Alternatively a flight-line was obtained, and followed up as quickly as possible by car. The flights pass, sometimes continuously, for as much as thirty minutes, during which about ten miles can be covered by the observer. The speed of the birds' flight and the vagaries of the roads make it impossible to keep any one flock in sight. Each flock passing within view of the observer is therefore a separate clue to the position of the roost.

By the first method the roosts at A, G, U and B were located, and by the second, R, E_2, L, H and B_2.

When a roost had been found, observations were made over a large tract of country to discover how far the birds travel to and from their feeding-grounds. According to whether the observer is near the roost or near the edge of the feeding-area, the size and number of the flocks will be greater or less. Sometimes flocks may be seen to pass in two directions, showing that feeding-areas of adjacent roosts overlap at that point. This overlapping was commonly observed, and is probably the rule except where an intervening tract of country, such as Haldon ridge, between the U and G areas is destitute of suitable feeding grounds.

* See Table of Roosts on page 149.

All observations were recorded by means of coloured pins on a ¼-inch Ordnance Survey Outline Sheet. A black square fixed by a coloured pin represented a roost, and all pins of that colour, points of observation from which Starlings were known to travel to that roost. In the map appended (p. 145) the different colours are represented by different hieroglyphs, and the roosts themselves by the same hieroglyphs on a larger scale, each surrounded by a black ring. The broken rings at T and S represent roosts which had moved or broken up before February 1st. For the sake of simplicity the map is made to represent the distribution of the roosts on that date, so far as this was known. Actually it was necessary to extend our observations over a long period, owing to the size of the area, and changes had already occurred in one district before we had mapped another. These will be separately described. Finally, the fine double circles indicate roosts reported, but not visited and confirmed.

In addition to this survey, routine observations were made near Roborough of the time of passage of the morning flights, with a view to estimating the effect of weather conditions. Experiments designed to test the intensity of light at the time were not sufficiently delicate and consequently abandoned. It would be valuable to investigate this point by means of a photo-electric (selenium-cell) apparatus. As far as possible the behaviour of birds in misty and stormy weather was observed, since it provides evidence on the means by which they find their way. Naturally conditions unfavourable to visibility affect bird and observer alike, and consequently few observations were obtained.

4. Distribution of Roosts.

In the last section it was stated that changes in the position of some roosts had taken place during the period of the survey. These were four in number, and were perhaps due in two cases (E, S) to the activity of the inhabitants in trying to make the sites untenable, either by their shouting or firing guns, by fireworks or smoke. In another case (B) the roost divided when the number of birds increased beyond the capacity of the site. Whatever the cause of shifting, the roosts are not resorted to with the same regularity as that found with Rooks (*Corvus f. frugilegus*). Some indeed are exceedingly ancient. The first record of a Lundy Island roost, and also the first record of the Starling in Devon, is in Westcote (18, 1630). He writes of the place: "timber and

wood it hath none, only a few low stunted elders, which are haunted with such a multitude of stares that you can hardly come to them for the dunging of the birds." How long this roost was occupied is not known, and it is now extinct. The Slapton Ley (S) site is described by Polwhele (13, 1797). "Immense numbers of these birds," he says, "roost upon the reeds and rushes growing in Slapton Lee; whence they disperse in the morning many miles into the neighbouring country." In most cases, however, no records are available. Some localities have been resorted to for twenty years or more, but the actual site has changed slightly from time to time (*cf.* B, U, A). Some are apparently new, or only a few years old (*cf.* B_2, H and E). Usually the site itself is not permanent. The destruction of cover is the subject of a later section; it may be observed here, however, that reeds, rhododendrons, laurels, coppice and furze-scrub, which are used by the Starlings, may be cut down by man even if the birds do not destroy them. Reeds (*Phragmites communis*) are the least liable to extermination, and this may explain why the roost at Slapton (S) has always occupied the same site. In most cases (H, B, B_2, E, A) the birds do not go far if their cover is destroyed, but take possession of the nearest suitable place.

In late January (see map) there were probably eleven roosts occupied in Devon (part) and east Cornwall, including the anomalous S-area, which, though divided into many small roosts at this date, is comparable with the others. They are spaced around Dartmoor and the Cornish moors at intervals varying from ten (R to B) to twenty-six miles (A to G). (Later on only seven and a half miles separated B and B_2.) The mean distance between roosts in contiguous areas is 16.5 miles—more than twice that estimated by Forrest (8) in Shropshire. The roosts are closest in the country lying to the west of Dartmoor, and more distantly separated to the north-east and south-east.

The localities chosen are exceedingly varied. Roosts have been described on islands, viz.:—

Lundy Island.	Westcote (20)
Cramond Island, Firth of Forth.	Campbell (2)
North Bull Island, Dublin Bay.	Kennedy (11)
Looe Island, Cornwall (formerly).	H. G. Hurrell (*in litt.*).

They are sometimes close to the sea, as at S, T and M; in either case the birds are limited to half the compass for feeding-grounds. At B the roost is on the side of a steep

MAP OF THE AREA INVESTIGATED IN DEVON AND CORNWALL.

Roosts are marked by circles, each with index mark in centre. The distribution of smaller index marks indicates extent of the several feeding areas.

valley, and at G on the top of a ridge 700 ft. above sea-level. Owing to their predilection for laurels and rhododendrons, Starlings roost commonly in parks, as at R, U and H. Even when situated inland the roosts are often eccentric to the feeding-areas. Roost B receives birds from 20 miles distant on the S.E. side, but on the N.W. side none at all. Starlings at Kennford fly 15 miles to G rather than 5 miles over the Haldon ridge to U, and at Crockernwell they go 24 miles to G rather than 12 to U or 13 to A. In one case, at L, a flight of birds was seen to pass directly over the roost, apparently on the way to H, 17 miles further on. This was confirmed later by intermediate observations (see map). Without more historical evidence it would be valueless to generalize about these facts. Suffice it to say that though the roost in every case lies within the feeding-area, it appears to bear no other relation to it.

The population of a roost is exceedingly difficult to estimate. For what they are worth, certain considerations may be set down here. To the observer the enormity of numbers appears astonishing on each occasion that he witnesses the arrival or departure of the birds. It is easy to imagine that each new roost is larger than any other. Local inhabitants commonly suppose that the roost they know is the only one in the county or even in the kingdom, and that so many birds must come scores of miles. Efforts have been made, however, to find the order of magnitude, whether millions, as is commonly supposed, or thousands. There are two methods of approach ; the first is by the number of birds to the square yard in the roost. Since the birds perch in tiers on the trees or the bushes, a "square yard" really means a column with a cross section of a square yard. At Bere Alston the area of the roost is *c.* five acres, and the number of birds per square yard cannot be more than twenty. This gives a figure of 500,000 for the population. This is the highest figure that can reasonably be maintained. By the second method the number of birds per acre of feeding-area is estimated by day-time census. Unfortunately, the much greater accuracy of this method was not realized until too late, and only two counts had been made. It is quite inconceivable, however, that there should be above three to the acre (in one count the density was < 1). Imagine, for example, every twenty-acre pasture with more than sixty birds in it ; the figure is not too low. Now the B feeding-area is approximately 130,000 acres, giving a population of 400,000. This is one of the largest roosts in the two counties, and it may be

said with some confidence that it shelters not more than half a million birds. Those who have been present at a large roost will find it difficult to believe that the numbers are so small.

For Gittisham Hill (G), the largest roost in the area investigated, the two estimates are 500,000 (by the density in the roost) and 700,000 (by the extent of the feeding-area). Other roosts probably vary between fifty thousand and a quarter of a million, and the whole population of the 3,000 square miles of country is of the order of five millions. It will be seen that these estimates are almost entirely conjectural; but they are probably too large rather than too small, and should serve to check the wild and absurd estimates which are frequently offered.

A magnificent description of the scene at a roost at nightfall has been given by Kirkman (11). Certain observations may be added here. The aerial evolutions of the whole flock before they finally retire at night have never been seen in this area, although on some twenty occasions we have been present at roosts at that time. Small parties of birds begin to move up towards the roost about two hours before sunset, stopping to feed constantly on the line of flight. For about three-quarters of an hour before sunset considerable numbers arrive in the neighbourhood, and feed for some twenty minutes before they fly to the roost. At this time in outlying districts small parties are collecting at rendezvous which are occupied each evening—often tall elm trees. Here they may await the passing of flocks from further afield, or they may make off independently as a separate unit. All along the line of flight birds may be seen on housetops or trees, watching for a passing flock, looking this way and that, and singing continuously in an undertone. When one comes overhead they fly up after it, so that, as it nears the roost, a flock is continually growing and extending. One after another they pass over, at most for half an hour, and when they arrive, pitch suddenly into the roost. This precipitate "rocketing" is very characteristic. At G roost on December 28th the arrivals were so continuous as to suggest a storm of Starlings. The noise of their droppings on the road was like the heavy splatter-splatter which heralds a July thunder-shower.

The chatter of the birds in the roost is so like the noise of a waterfall or of a locomotive blowing off steam that the similarity must occur to every observer. It is curiously subdued considering the number of birds, and not audible

above 500 yards, even across a valley. The smell is very unpleasant in damp weather, and may carry about the same distance downwind. In describing the destruction wrought by Starlings at Huish (H), Clinton (4) remarks that "a thinning (of the plantation) was due in 1924 . . . but the stink was so bad that men could not face the job; every branch was hanging with filth and there was black slime some two inches thick covering the ground." In some cases the depth may be three or four times as great at the end of the winter.

In the morning the volume of chatter grows with the dawn. There is some flying to and fro to obtain good perches, and the greater part of the birds leave in a few large flights. They rise up from the roost with a roar like a furnace blast, flying across and across, sorting themselves into parties, and gradually emanating outwards in their various directions. Thus it is that a few miles from the roost the morning flights take the form of long curved waves or ripples, some hundreds of yards apart. Some parties may form up within the roost and leave separately. The spectacle is magnificent, and a description which can do it but poor justice is better omitted.

Roosts B and B_2.

Roost B was the first found. It was situated in a steep cover above the River Tamar a mile west of Bere Alston station. The upper part of the cover is gorse, and the lower part deciduous trees of several species, springing from a dense undergrowth of brambles. Except in the gorse, the birds received no protection from the weather once the dead leaves had fallen from the trees. They perched as low as possible, almost in the brambles.

There has been a roost in that neighbourhood for at least twenty years (local information), and possibly much longer. Until about 1922–3 it was situated about a mile lower down in a reed-bed close to Hole's Hole village; but regularly this cover got broken down by the weight of the birds, and they had to perch in trees and hedges in the neighbourhood for the latter part of the season. In 1923–4 they did not return to Hole's Hole (same informant), and no doubt it is from that time that the present site has been occupied.

The south-easterly flights from this roost were observed each morning during January and early February at Holt Wood, near Roborough (see Section 7). On January 31st and February 1st none was observed; on the 2nd the birds were seen to come from exactly the opposite direction. On February 5th the new roost (B_2) was found in Plym Vale,

TABLE OF ROOSTS OCCUPIED IN PART OF DEVON AND EAST CORNWALL, 1928–29.

Initial Letter.	County.	Position.	Ordnance Survey 1″ Pop. Edition Ref.	Height above Sea-Level. feet.	Type of Cover occupied 1928–1929.	Approx. Age (Years.)	Date of Discovery.	Observer.	Remarks.
A	Devon	Horsehill Covert, Alfeton.	128 D 4	400	Spruce Fir Plantation 50 years old.	>10	Jan. 23	V.C.W.-E. A.H.M.C.	Formerly on N. side of valley, now S.
B	Devon	E. bank of R. Tamar near Bere Alston.	137 J 8	100–250	Young deciduous trees and gorse.	>20	Dec. 18	V.C.W.-E.	Formerly 1 mile lower at Hole's Hole. See B_2.
B_2	Devon	Plym Vale, near Colwill Farm.	144 C 11	150–200	Laurels and gorse.	6 ?	Feb. 5	V.C.W.-E. A.H.M.C.	Split from B about Feb. 1.
E_1	Cornwall	Penhele Manor, Egloskerry.	137 C 3	450	Larch Plantation, 15–20 years old.	2	Feb. 7	A.H.M.C. V.C.W.-E.	Already moved back to original E_2.
E_2	Cornwall	Werrington Park, Launceston.	137 D 4	550	—	—	Mar. 2	A.H.M.C.	Driven back from E.
G	Devon	Combe Ho. Lodge, Gittisham Hill.	129 J 3	700	Laurels, 12–15 ft.	> 5	Dec. 28	V.C.W.-E.	—
H	Devon	Huish.	127 E 11	300	Rhododendrons and deciduous trees.	6	Jan. 24	V.C.W.-E. A.H.M.C.	Formerly in Brickmoor Plantation. See p. 152.
L	Devon	Lewdown.	137 C–D 8	550	Larch Plantation, 17–20 years old.	—	Jan. 17	A.H.M.C. V.C.W.-E.	Evacuated for short time during February cold spell.
M	Cornwall	Mawgan, near St. Columb Major.	143 A 7	350	—	—	—	A.H.M.C.	Reported by Col. B. H. Ryves.
[P	Somerset	Porlock Marsh.	—	0	Reeds ?	—	—	—	Reported by Mr. W. F. Hendy.]
R	Cornwall	Rosecraddock, near Liskeard.	137 J 3	450	Rhododendrons.	—	Jan. 23	A.H.M.C.	—
S	Devon	Upper Ley, Slapton.	145 G 7	0	Reeds.	>132	—	—	Broke up on Dec. 24th.
T	Cornwall	Tywardreath Marsh, Par Station.	143 D 13	20	Bullrushes and alders.	—	—	V.C.W.-E.	Shifted before January 5th. Later position unknown.
U	Devon	Ugbrooke Park, near 11th milestone on Exeter–Newton Abbot road.	138 F 8	400	Laurels and rhododendrons.	—	Feb. 9	V.C.W.-E. F.R.H.	Locality inferred from flight-lines *c.* Jan. 22nd.
Y	Devon	Yarcombe.	—	—	—	—	—	—	Reported by Mr. D. St. L. Gordon.

between Colwill Farm and the G.W.R. line, only a mile from the Holt Wood observation point. The cover here was laurels and gorse ; additional protection was given by the south-easterly aspect of the site.

To this roost came Starlings from by far the greater part of the old B-area. The small map (Fig. 1) shows (i) the points

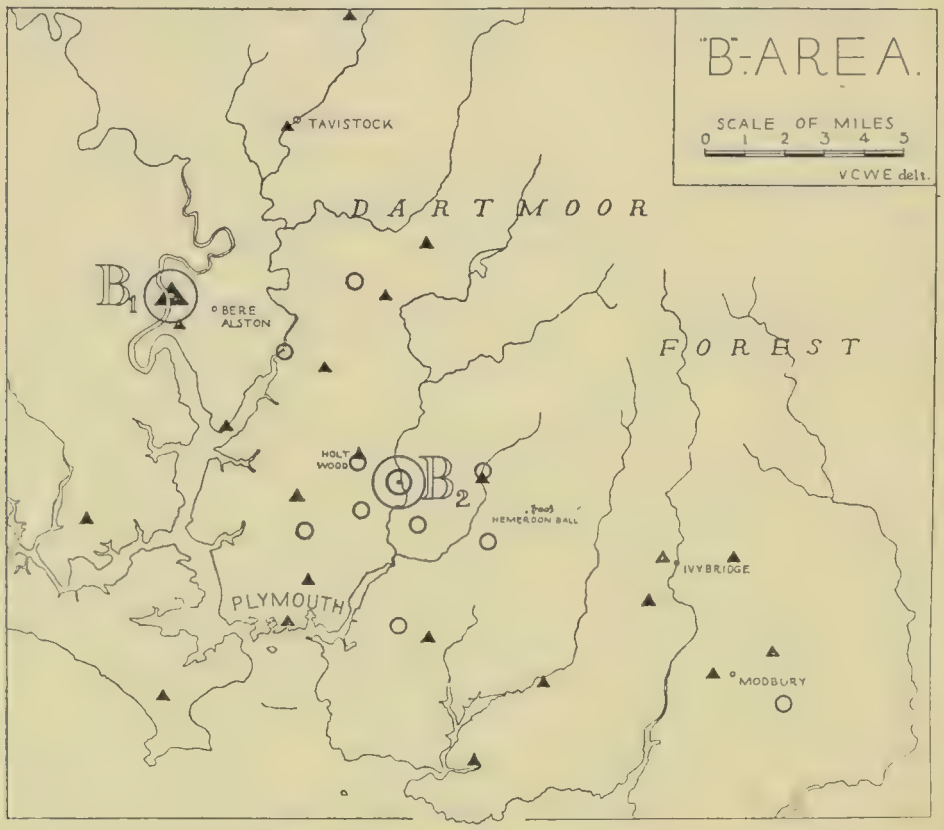

FIG. 1. MAP OF B-AREA.

▲ OBSERVATIONS OF FLIGHTS GOING TO B BEFORE THE DIVISION (FEBRUARY 1ST).

O OBSERVATIONS OF FLIGHTS GOING TO B_2 AFTER THE DIVISION.

of observation before the division, and (ii) those afterwards, from which Starlings were going to the new B_2. The original B-roost continued to be occupied, but the numbers were somewhat reduced, and very much less than at the new roost. Unfortunately, there was no opportunity of re-surveying the B-area. It appears that this division has occurred in former years at different times. Mr. Cox has made observations at Hartley, just north of Plymouth, since 1914, and it is interesting to see that his observation point has been sometimes in the B_1 area and sometimes in the B_2. (His notes also reveal the existence of a roost lying to the west of Plymouth, in 1915–6 and 1921–2.) It was in 1922–3 that the B_2 site was first noticed ; it was not exactly located, but cannot have been far from its present position. From that winter until

1925–6, when the observations ceased, the B_2 site must have been occupied each year; and in 1923–4 and 1925–6 no flights to or from B_1 were seen at all. From other sources Mr. Cox has learnt that about 1925–6 the B_2 roost was situated near Plym Bridge halt (G.W.R.).

The division of the Bere Alston roost coincided with the onset of very severe weather, which caused a considerable increase in the numbers of Starlings over the whole area by weather-movements from further east. It is therefore possible that it was brought about by overcrowding of the site.

Roost S.

The upper ley at Slapton is densely overgrown with "spires" (*Phragmites communis*) in which the Starlings have roosted for at least 132 years. The reeds are harvested for thatching, and consequently every effort is made to keep the birds away. In the autumn of 1928 large numbers roosted there as in former years, but on Christmas Eve (December 24th) none arrived. Whether or not there had been a gradual diminution before this could not be ascertained. Subsequently they roosted here and there all over the "S-area" in fifties and hundreds. To discover the behaviour of birds in this district was the most difficult part of the survey, and it has been but incompletely worked. Not infrequently our expeditions were entirely unproductive, and those observations which were obtained were conflicting, and have been omitted from the map. This area is bounded by a line drawn through Torquay—Totnes—South Brent—Aveton Gifford—Thurlestone. It overlaps the U-area to the north and the B-area to the west. If the same dispersion occurs in 1929–30, it is hoped to investigate it thoroughly, for the phenomenon is quite contrary to our general experience in this district, although the social roosting-habit is not invariably found. In all areas individual birds may roost privately (see Section 8).

Detailed information of each roost has been obtained, but it is not considered of sufficient importance for inclusion here. Mention may be made, however, of certain roosting-places no longer occupied, and of others which have been recorded but not visited by me. About 1922–3 there was a roost in gorse on Whitchurch Down, Tavistock. This is on the northernmost edge of the present B-area; it may have existed contemporaneously with the Plym Bridge roost, after the Starlings had left Hole's Hole. The roost recorded by Westcote (18) on Lundy has been mentioned already. Cummings (6) found "four or five" roosts in the Barnstaple district, and describes one on Vodden Hill in detail. It is

possible that the conditions are similar in this district to those obtaining around Slapton (S-area). Our own observations in the Holsworthy–Hartland area failed to yield any decisive information. In general, however, no difficulty was met with in locating roosts, and it is improbable that any can have been overlooked.

5. The Effects of Roosting.

Roosting Starlings may do much harm to cover by their own sheer weight, but far more is generally wrought by the accumulation of their droppings. In many parts of the country they roost almost exclusively in reeds; they do so in this district at Slapton Ley (S), and each September on the Torridge (H) for a few weeks till the reeds get broken down. Formerly the B-roost was in reeds also. Usually the damage amounts to very little, but at Slapton the "spires" or "mace," as they are called locally, are regularly harvested for thatching material, and are valued at some hundreds of pounds. There are many acres of reeds, and as they become broken down in one place the birds move to another.

The Starlings are universally disliked on account of the disgusting smell they leave behind. Rhododendrons and laurels afford splendid protection from the weather, and consequently they often roost in shrubberies close to the owners' houses, making the place wellnigh uninhabitable in damp weather. In the course of three or four years the rhododendrons are killed. Not only do the droppings accumulate on the ground and affect the roots, but cover and clog the leaves until they shrivel and fall off.

Economically, however, the principal damage is done to coniferous plantations, generally between fifteen and twenty years old (*cf.* E, L, H and Kingston Bagpuize, Berks.). The first sign of the damage is the disappearance of whatever undergrowth there may be. At Huish (H) the Starlings roosted in 4–5 acres of Braunds Hill cover (larch) until the end of December, 1928, and in March, 1929, there was a clean line where the ivy undergrowth stopped and the trees became foul. Trees had been broken down, and it appears that the roots of all become weakened, so that the damage manifests itself in the first spring gale. Lord Clinton, to whom the property belongs, has described the destruction in former years of the neighbouring Brickmoor plantation (4). "About one-third of the trees are dead and many of the remainder are in a sickly state; the spruces have suffered more than the deciduous larch and in a plantation close by which accommodated the

overflow, the young Douglas firs have suffered more than any other species." It is uncertain whether this should be attributed entirely to the Starlings, as the plantation is on very marshy and ill-drained ground, where the tree-roots can hardly have obtained a firm hold. At the present time an undergrowth of nettles and elders—plants which are so frequently associated with disused fowl-runs—is springing up. Lord Clinton comments that Starlings "are no doubt friends to the farmer, but in large numbers they are bad foresters."

The accumulated dung and the foulness of the lower branches makes the cover unsuitable for young Pheasants, which by the end of May should perch off the ground out of the way of foxes. Old birds may continue to roost in the cover the whole time the Starlings are there, in spite of the smell, slime and dust, and probably it is from such a centre that the gapes-worm is disseminated. If it could be conveniently collected, the tons of guano deposited annually might be of value as a fertilizer. Unfortunately, it is difficult to dig it out from shrubberies and thick plantations; indeed, the smell alone might prove intolerable. It might, however, be done in certain cases.

Because of these unpleasant habits, efforts are made in most places to remove the birds from their roosts. In itself the effort is futile, for they are unlikely to go beyond the next plantation; very exceptionally they may be driven over to the neighbour's property. Shooting has no appreciable effect in reducing the numbers, although over eighty birds have been killed at a single discharge. Smoke, shouting, beating of trees and letting off blank cartridges are sometimes efficacious in concert. Fireworks, particularly rockets and Roman candles, succeeded in driving the Starlings from E_2 to E, and subsequently back again ($3\frac{1}{2}$ miles).

It is recommended that no steps be taken to destroy Starlings wholesale by poison gas or other efficient means before their local economic status is properly examined. At present the damage done in this part of the country is small compared with the known beneficial effects; it has been stated already that the Starling as an economic factor either for good or evil is of vast importance, and to tamper with the distribution without enquiry would be dangerous. Owing to the roosting-habit the bird could be practically exterminated in one season by a concerted attack. The effects would be felt beyond the borders of Devonshire, and might even become the subject of international arbitration! Winter immigrants are not to be considered as altegether British property.

(*To be concluded.*)

REPORT ON THE EFFECT OF SEVERE WEATHER IN 1929 ON BIRD-LIFE.

BY

H. F. WITHERBY AND THE REV. F. C. R. JOURDAIN.

IN response to our request for information on this subject (Vol. XXII., p. 376) we have received reports from widely separated districts, and although these are too few and far between to give any complete idea of the effects of the frost of February and March, 1929, they are of considerable value and we give below a summary of each, with particulars of cases of special interest.

In dealing with the severe weather experienced during the spring of 1929 and its effect upon bird-life generally, it is impossible to avoid comparison with the far more destructive frost of 1917, which was dealt with by the present writers in a paper which appeared in *British Birds*, XI., pp. 266–271, and XII., pp. 26–35.

No previous destructive frost had been investigated with the help of a large body of correspondents from all parts of the British Isles and we had also the advantage of the official Meteorological Records for reference.

On that occasion the enormous loss of bird-life was evidently due to the fact that the usual refuges to frozen-out immigrants proved to be veritable death-traps to them. In most winters there are certain parts of the British Isles, such as the Devonian peninsula and southern Ireland, which are frequently free from frost and snow when other parts of the country are frost-bound. In 1917 the cold in these districts was the most severe of which we have records, so that the half-starved arrivals, already weakened by their efforts to pick up a livelihood under very trying conditions, fell victims almost at once and perished literally by thousands of starvation. In the south the extreme cold was accompanied by heavy snowfalls, which lay deep on the ground right up to the edge of the sea and covered up all possible sources of food supply. In other districts conditions were different, but almost equally unfavourable. Where there was little snow, the first frosts were accompanied by driving rain which formed a glassy covering to the ground and even the tree-trunks as it froze, and this state of things proved especially fatal to the resident insect-eating birds, such as Creepers, Tits and Wrens.

Although some extraordinarily low temperatures were recorded in 1929, other conditions were totally different to

those of 1917. January was persistently cold and in all parts of the British Isles the temperature was below the normal for the season. It was, in fact, the first really cold January since 1917, but in the west of Ireland, Wales and Cornwall it was comparatively mild. Precipitation was heaviest on the western side. In February the cold became intense, especially in England, during the period from the 11th to the 17th, while an unusually persistent anticyclone spread over the greater part of England and Scotland. Precipitation was only about half the normal during the month and towards the end of the month the weather again became severe, though the cold was not so intense as before. March was, on the whole, abnormally dry, still and sunny and anticyclonic conditions prevailed until the 16th, when there was a general rise in temperature and southerly winds prevailed.

A consideration of the above summary shows that the conditions, though locally severe on the resident birds, were not on the whole very inimical to bird-life. Even in February, during the coldest weather, there were wide differences in the mean temperature in different districts. Though an absolute minimum of 1° below zero was recorded from Monmouth on the 14th and a similar temperature at Durham on the 17th, there were more favoured spots, such as Blacksod Point in co. Mayo, where the lowest temperature recorded during the month was 33° on the 16th, and in co. Kerry and co. Cork minima of 30° were recorded. At Falmouth also the temperature never fell below 30°.

Some of the reports we have received from coastal districts and from reservoirs give graphic evidence of severe mortality and in some districts resident birds have diminished, but it is clear that the severe weather of February, 1929, produced no such widespread effect on our resident birds as did the very prolonged severe weather of 1916-17.

One result of the frost, very noticeable in certain districts during its continuance, was the unusual movements caused among many species, this being evidenced by diminution or absence of birds normally present or by congregation of birds in numbers far in excess of what is usual. What ultimate effect on bird-life is produced by such abnormal movements there is no evidence to show.

A point of great interest upon which we have very little evidence this year is the effect of malnutrition during such exceptionally severe weather upon fecundity in the following breeding-season. In 1917 smaller clutches of eggs were noted

by several observers (Vol. XII., p. 35), but this year we have had only one definite report on this subject.

The following are summaries of the reports received, for which we have to thank all those correspondents concerned.

YORKSHIRE. Brighouse. J. C. S. Ellis.

Several Meadow-Pipits (*Anthus pratensis*) and Song-Thrushes (*Turdus philomelus*) perished on a sewage farm by sheltering in drains and becoming frozen in.

NORFOLK. Holt. D. L. Lack.

No mortality directly due to frost observed, but local absence and diminution of a number of species noted during the frost and less number of Stonechats (*Saxicola t. hibernans*) than normal up to the end of March. Also notes cessation of song by several species during frost.

SUFFOLK. Lowestoft. F. C. Cook.

Estimates number of birds found dead on shore between Lowestoft and Southwold at 250 of 40 different species. Most of these were "water" birds and included a number of Wigeon (*Anas penelope*); thirty Common Scoter (*Oidemia n. nigra*) which, curiously enough, though a sea-duck, suffered most severely; five Oyster-Catchers (*Hæmatopus ostralegus*); Dunlin (*Calidris alpina*) became very tame and twelve dead were found; six Curlews (*Numenius a. arquata*); twenty to thirty Black-headed Gulls (*Larus r. ridibundus*) on the beach besides others found dead in Lowestoft itself, where they became very tame and ate almost anything; over fifty Common Gulls (*L. c. canus*) which suffered most severely, while Divers (*Colymbus*) and Grebes (*Podiceps*) were also among the victims. Mr. Cook gives the following illustration of what must have happened to many birds during the worst of the weather: "On February 15th, during a short visit to the beach at Lowestoft, I found a Redshank (*Tringa totanus*) which had evidently sought shelter under the lee of a marram-tufted sandhill. During the night the snow had formed a drift round it, so that only its head was visible. It was frozen stiff in an attitude of sleep."

SUFFOLK. Southwold. C. E. Alford.

Reports considerable losses in Fieldfares (*Turdus pilaris*) and Redwings (*T. musicus*) and, to a less extent, Blackbirds (*T. merula*). Also states that Scoters were badly affected (*cf.* F. C. Cook).

Mr. A. H. Patterson of Yarmouth also confirms generally the great mortality on this coast.

MIDDLESEX AND SURREY RESERVOIRS. T. H. Harrisson.

Sends a list of dead birds found mostly at Littleton, Staines and Molesey Reservoirs on March 2nd and 3rd. These included over sixty

Black-headed Gulls, twelve Coot (*Fulica atra*), four Tufted Duck (*Nyroca fuligula*) and small numbers of other ducks, gulls, a few grebes and other birds.

The subsequent effect on the numbers of breeding birds in the Harrow district was not noticeable except in the case of the Golden-crested Wren (*Regulus r. anglorum*) which was seriously decreased.

SUSSEX. Bexhill to Eastbourne. Stuart Smith.

Found some dead birds between February 16th and 20th, such as six Fieldfares (and some so weak that they could be taken in the hand); eight Redwings much emaciated; a Curlew so weak that it was caught and found to be starved and emaciated; other birds, including Brent Goose (*Branta bernicla*), noted as becoming very tame.

Considers the following residents to be much diminished; Golden-crested Wren disappeared in the frost and none detected up to April 4th; Coal-Tit (*Parus a. britannicus*) reduced by about half; Long-tailed Tit (*Ægithalos c. roseus*), common in the previous autumn, were reduced to a few pairs by April; Stonechats present in January gradually disappeared during the frost (one starved picked up February 22nd); five appeared on March 22nd, but the population estimated as decreased by 75 per cent.; Wrens (*Troglodytes t. troglodytes*) reduced by half.

HAMPSHIRE. Bournemouth. Rev. F. C. R. Jourdain.

Considerable reductions in breeding stock of Stonechat, Golden-crested Wren, Common Wren and Song-Thrush. Notes extraordinary tameness of Black-headed Gulls during the frost.

CORNWALL. Mawgan-in-Pydar. Col. B. H. Ryves.

Notes unprecedented influx of Lapwings (*Vanellus vanellus*) and Redwings, but considers effect of the severe frost trivial, suggesting as a probable reason that little or no snow fell in the district. Long-tailed Tit only resident noticeably reduced (about 60 per cent.).

SOMERSET. Mendip Districts. Stanley Lewis.

Redwings and Song-Thrushes suffered greatly and many dead (much emaciated) were seen; a few dead Blackbirds and Starlings (*Sturnus vulgaris*), but many of the latter were reduced to a very weak state. Black-headed Gulls fed in barn yards and fowl runs. The following resident birds reduced: Stonechat almost vanished from former breeding-places, Reed-Bunting (*Emberiza schœniclus*) much diminished, and some reductions in Golden-crested Wren, Wren, Long-tailed Tit. Majority of nests of Blackbird, Song-Thrush and also Snipe had only two or three eggs each as full clutch.

PEMBROKESHIRE. Skokholm and neighbouring coast. R. M. Lockley.

Large influx of birds and great mortality between February 11th and 18th. Many dead found, but many more dead and dying eaten by

Ravens, Crows, Buzzards, Herring and Great Black-backed Gulls. On the mainland on February 17th a two-mile lane at a low estimate contained 200 corpses of Redwings, Song-Thrushes, Starlings and a few Blackbirds. Birds were noted dropping into the sea on the very short passage between the mainland and Skomer, and on a very small beach were forty Starlings, some Song-Thrushes and a Blackbird dead, washed up on the tide-line. On Skokholm a conservative estimate of the numbers of the chief victims calculated from the remains found was as follows: Golden Plover (*Charadrius apricarius*) 240, Lapwing 30, Starling and Redwing 200 each, and Song-Thrush 100.

PEMBROKESHIRE. Solva. H. A. Gilbert.

Large numbers of dead birds found on February 22nd and 23rd, including eleven Snipe (*Capella gallinago*) at one spring.

ANGLESEY AND CARNARVONSHIRE. Prof. Kennedy Orton.

The following resident birds are noted as being considerably diminished: Long-tailed Tit, very greatly; Golden-crested Wren, Tree-Creeper, Wren, Song-Thrush, Dipper (*Cinclus c. gularis*) and Great Spotted Woodpecker (*Dryobates m. anglicus*) greatly; Great, Blue and Coal Tits considerably; others affected to a less degree were Mistle-Thrush, Stonechat, Robin, Little Grebe and Snipe. Many dead Starlings found, but the breeding-stock not obviously affected.

CHESHIRE. Dee Estuary. W. Wilson.

Numbers of dead Dunlin and Redshanks found and some Knot and Curlew. Very unusual numbers of Waders noted and proportionately does not consider the loss very high.

CHESHIRE, Northwich. A. W. Boyd.

Song-Thrush and Blackbird frequently seen dead during the frost and breeding numbers of Song-Thrush especially reduced. Long-tailed Tit possibly slightly reduced. The most striking effect of the frost was the almost entire absence after February of Fieldfares and Redwings, which are normally present in the district in numbers.

HEREFORDSHIRE. Between Ross and Glasbury. H. A. Gilbert.

Numerous dead birds, chiefly Thrushes, found during frost. Breeding birds generally diminished, noting particularly Wood-Larks (*Lullula arborea*) and the three Woodpeckers. Mr. H. G. Alexander also notes the absence of Wood-Larks from certain haunts in Herefordshire, but notes abundance of Long-tailed Tits there.

WORCESTERSHIRE. Birmingham District. H. G. Alexander.

Notes diminution of Golden-crested Wren from 5 or 6 pairs to one, and Long-tailed Tit not seen since March, though usually about six pairs. Great decrease in Coot.

OBITUARY.

ROBERT HENRY READ.

It is with very deep regret that we record the death of Mr. R. H. Read, which took place at his house in Bedford Park on August 8th, 1929, at the age of 73. He had been in failing health for some time, but the end was quite unexpected. Although a keen student of bird-life and always ready to exhibit his more interesting eggs, he wrote little, but his diaries contain many notes of considerable value. His serious work dates from about 1886, and while living in Scotland in 1888 he visited Ailsa Craig, St. Kilda and the Outer Hebrides. Subsequently he paid several visits to the north of Scotland, and in 1894 began a series of visits to various parts of the Continent. The most important of these were trips to Sweden in 1894, 1895 and 1903; Norway (with Dr. C. Christy) in 1895; Denmark in 1901 and Spain and Corsica with the writer in 1906 and 1909.

On his visit to St. Kilda he obtained a freshly-killed Landrail on June 9th, 1888 (see *Br. B.*, Vol. IX., p. 255). In Sweden perhaps the most interesting discovery was that of a nest of the Honey Buzzard (*Pernis apivorus*) in the Göteborg district, and his visit with Dr. Christy to the Dovrefjeld in Norway during a Lemming year was very productive. Nests were found of Short-eared Owl, Rough-legged Buzzard, Wood-Sandpiper, Broad-billed Sandpiper, Lapland Bunting and many other species.

In Spain he worked in the Sierra de Jerez and the lower Guadalquivir, and in Corsica visited the haunts of Whitehead's Nuthatch and found a nest with newly-hatched young of this elusive species.

He published a pamphlet on the "Birds of the Brent Valley" and took a prominent part in the formation of the Bird Sanctuary there.

A typical Somerset man, somewhat slow of speech, Read had a wide circle of friends, while his unselfish and self-effacing character inspired their deepest affection and respect. He made no enemies, and many will feel his loss deeply.

F.C.R.J.

NOTES

SOME INCUBATION- AND FLEDGING-PERIODS.

THE following data were obtained in the vicinity of Harrow-on-the-Hill (Middlesex) during 1929.

Species.	Incubation. (Days)	Fledging (Days)	No. of eggs in clutch	No. of young flown	Period of observation.
Meadow-Pipit (*Anthus pratensis*) ...	—	13–14	4	2	July
Yellow Wagtail (*Motacilla f. rayi*) ...	14–16	12½–13½	4	2	,,
Blue Tit (*Parus c. obscurus*) ...	—	15	9	8	May
Spotted Flycatcher (*Muscicapa s. striata*) ...	12–13	11*	4	4	July
Willow-Warbler (*Phylloscopus t. trochilus*)	13	14	4	4	,,
Blackcap (*Sylvia a. atricapilla*) ...	—	11–12	4	4	,,
Whitethroat (*Sylvia c. communis*) ...	—	11–12	5	2	June
Song-Thrush (*Turdus ph. clarkei*) ...	13–14	12–13	4	4	April-May
Blackbird (*Turdus m. merula*) ...	—	14–15	4	2	April
do. ...	—	13	4	3	April-May
do. ...	—	13–14	4	4	June-July
Hedge-Sparrow (*Prunella m. occidentalis*)	—	11–12*	5	5	July

T. H. HARRISSON.
W. R. HARRISSON.

JAY NESTING ON A HOUSE.

ON May 23rd, 1929, Mr. J. Vincent told me that he had had a report of a Jay's (*Garrulus g. rufitergum*) nest on a house at Hickling, Norfolk, and that its discoverer had alarmed the old bird and seen it fly from the nest.

We visited the house and found the nest—an untidy structure of sticks—on the square top of a drain-pipe on the side of the house, just below the gutter. On climbing to the

*Young left nest when looked at, and might have stayed one or more days longer if undisturbed.

nest I found it held two eggs, one cracked and both cold and deserted, but obviously those of a Jay. The house was built a few years ago on the site of a small wood which was for the great part felled, and probably the Jay had returned to a known site and made the best of the altered surroundings. The house was unoccupied just at the time of building.

The annexed photograph was taken from a first storey window by Mr. Niall Rankin, who has most kindly allowed me to make use of it. A. W. BOYD.

NESTLING WILLOW-WARBLERS HISSING.

UNTIL this summer I have never heard young Willow-Warblers (*Phylloscopus t. trochilus*) hiss, so think that it must be unusual. On June 10th, 1929, I went to look at a nest and as soon as I put my hand near it the young birds hissed. I was much surprised and tried again, whereupon the same thing happened. There were eggs in the nest eight days before, so the nestlings were not more than a week old.

B. A. CARTER.

UNUSUAL NEST OF REED-WARBLER.

On July 3rd, 1929, I found at Ramsholt, on the river Deben, Suffolk, an unusually large nest of a Reed-Warbler (*Acrocephalus s. scirpaceus*). This nest, of which a photograph is here reproduced, measured from rim to base between 10 and

11 inches. It was built round two reed stems only, one green and one dry. Possibly this may have had something to do with its unusual size. Three eggs were laid. T. G. Powell.

NESTLING OF ICTERINE WARBLER.

The following description of a nestling Icterine Warbler (*Hippolais icterina*) is taken from one examined at Surendal, Norway, on June 29th, 1929. Down absent. Mouth inside light orange-yellow, two oval black spots at base of tongue.

J. L. Chaworth Musters.

INCUBATION-PERIOD OF BLACKCAP.

At Surendal, Nordmore, Norway, I found a nest of a Blackcap (*Sylvia a. atricapilla*) with one egg on June 6th, 1929. The nest contained five eggs by June 11th (not examined on the 10th). On June 20th there were two newly-hatched young and the others duly hatched that day or the next. The young were ready to fly on June 30th. This gives the incubation-period as about ten days. J. L. Chaworth Musters.

ROOSTING OF MISTLE-THRUSHES.

SHORTLY after sunset, on August 19th, 1929, in my garden in Mawgan-in-Pydar, Cornwall, I noticed about twenty Mistle-Thrushes (*Turdus v. viscivorus*) fly, one after the other, into a small pine. The evening was dead calm, following a hot day of sunshine. I walked quietly to the tree and found the birds packed closely together, like Starlings at a winter roost, on a horizontal branch about 4½ feet long and 4 feet above the ground. At my near approach they flew into the big pines, but one, which was evidently fast asleep, did not take wing until my nose almost touched its breast. I then walked to the house and, from a window, saw all the birds return to the same small tree.

The following evening only the normal few birds came, and these roosted , scattered in the bushes.

In previous years I have noticed that Mistle-Thrushes at about this season leave the tall pines and roost in bushes, but never before have I seen them closely huddled together.

In winter they seem to roost singly, either high in the pines or low in bushes, according to the weather.

B. H. RYVES.

DIPPER'S NEST ON A ROOF.

IN 1927 and 1928 a Dipper (*Cinclus c. gularis*) nested in a hole in the masonry by the doorway of a water-wheel house,

which is in constant use, in Gloucestershire. This year a stone falling away and dislodging the nest rendered the site

unsuitable and the birds built on the stone-slated roof. The nest contained five eggs on April 26th, but a heavy storm of rain dislodged the nest a few days later. The Dippers, however, built again in the same place and safely reared a brood. I enclose a photograph kindly taken for me by the owner. A. G. TAYLER.

HOOPOE IN SUTHERLANDSHIRE.

ON September 9th, 1929, when Grouse shooting in Sutherlandshire, I was told by the keeper that he had seen a bird unknown to him. He took me to the spot and the bird, which I recognized as a Hoopoe (*Upupa epops*) was feeding inside a sheep-fold. I was able to observe it for some time as it was not very shy, and in the afternoon, when returning, we passed the same spot and the bird was still there.

The shoot is situated about sixteen miles from Lairg and is on the south side of Loch Shin. J. CUNNINGHAM.

COMMON EIDER IN KENT.

ON August 1st, 1929, while walking along the shore not far from Littlestone, I had a very near view of a young male Eider (*Somateria m. mollissima*). Its plumage looked quite clean and free from oil, but the weather was very rough at the time and this was, perhaps, the reason for the bird's presence so far south. M. BEDFORD.

MANX SHEARWATERS DEPARTURE FLIGHT FROM LAND.

FROM July 18th to 25th, 1929, I was camping on Skomer Island, Pembrokeshire, and saw something of the habits of the Manx Shearwater (*Puffinus p. puffinus*), a bird unknown to me before. I had pitched my tent in a hollow, in a space clear of holes but well among the burrows and with a large outcrop of rock close by. Sitting amongst the burrows each night watching the arrival of the Shearwaters, which came in at great speed to drop into the bracken and scramble and flutter along the ground to their holes, was a most interesting experience.

Still more remarkable was the general movement among the birds which began each morning about 2 to 2.30 summer-time. From their almost motionless positions, squatting on the burrows or just outside the holes, the Shearwaters began to creep off, slipping into the bracken here and there till it was clear that movement on a large scale had begun and that not towards the cliff and the sea but if anything in the other

direction. The ground behind the burrows, down the hollows and up to the rocks became crowded with birds, though earlier each night the whole of this area was quite clear. Soon the air was full of birds beginning to go, but they seemed only able to make blundering short flights as if unable to take off properly and they were constantly crashing into the bracken or into us. The difference in this and their arrival, when it was obvious they could always avoid any obstacle however fast their flight, was most marked.

We realised after the first few nights that the Shearwaters must be moving up to the highest ground to take off for the flight out to sea, but it was not easy in the darkness to find out how they did it. A search in daylight, however, showed that the whole surface of the outcrop of rock at its base was covered with scratches, while some were to be seen higher up, especially on two sides. We then felt certain that we had discovered the actual taking-off place.

That night, or rather in the early hours of the following morning, we witnessed a most remarkable sight. Standing in the hollow below the rock as the Shearwaters began to collect we soon realised that the birds beginning to blunder about and fall into the bracken were those which had taken off too low down and had failed to get up enough speed, while others were passing overhead with strong steady flight to the sea. We at once climbed the rock to a point from which we could see everything. The birds were actually scrambling and fluttering up the face of the rocks in every direction. There were two or three streams of birds following the same way up, and all passing along a ledge within four feet of us then throwing themselves into the air. The ground below was covered with slow moving birds like an army of rats and more were continually collecting from all sides. There seemed to be a definite point in the ledge, below which it appeared impossible to take off successfully since those birds which did so fell at once into the bracken or crashed further down the hillside, but the vast majority took off successfully from higher up and were gone in a flash. I should say that no bird taking off at less than six feet from the ground got away. There was no wind.

We stayed until 4 o'clock watching this procession of departing Shearwaters and it was unfortunate that this was our last night on the island and that we were unable to make investigations as to the method of the Shearwaters' departure in other parts of the island. D. T. RAIKES.

LITTLE GREBES DIVING WITH THEIR YOUNG.

WITH reference to the notes on this subject (*antea*, pp. 100, 133), on June 11th, 1929, when in company with a friend near Taplow, I watched a female Little Grebe (*Podiceps r. ruficollis*) which allowed a young one to climb on to her back, where she held it with her wings, and then dived under a submerged tree trunk, appearing the other side with the young one still firmly on her back. She did this several times, never having more than one chick on her back at a time. The male bird took a young one on to his back, but left it on the surface when he dived. The young were only about four days old. I was in a canoe and the birds were only five or six feet away, so that I had a very good view.

H. C. R. GILLMAN.

ALBINO OYSTER-CATCHER IN SCOTLAND.

ON the north coast of Scotland there have been seen, both in 1928 and 1929, two white Oyster-Catchers (*Hæmatopus o. ostralegus*). They always frequent the same part of the coast and are often in company with about twenty normal birds, but are somewhat "ostracised" by the remainder of the flock, usually flying at the edge of it or feeding on the flanks as if the flock resented them. Sometimes they sit on the rocks quite by themselves. So far as can be seen they are pure white in plumage, and the legs and bill are normal in colour.

R. J. BUXTON.

RUFF IN CORNWALL.

WHILE Snipe shooting on the Bodmin Moors in the Trewertha Marsh near Hawk's Tor, Trebartha, Launceston, on September 12th, 1929, my son, W. H. Hale, shot a Reeve (*Philomachus pugnax*). It was a solitary bird.

JAMES R. HALE.

BLACK-TAILED GODWIT IN BUCKINGHAMSHIRE.

ON August 18th, 1929, at Tring Reservoirs, a party of members of the London Natural History Society obtained excellent views of a Black-tailed Godwit (*Limosa limosa*).

The bird was busily feeding in the shallow water and was very loth to fly, but when it did take wing and encircled the reservoir, its long trailing legs and contrasted white coverts and black-banded tail were very clearly observed.

H. A. LITTLEJOHN.

IMMIGRATION OF CROSSBILLS.—The following reports, additional to those detailed on pages 69, 101 and 135, have been received.

YORKSHIRE.—Mr. A. H. Machell Cox saw a party of eighteen in Farndale on September 4th. Eight of this party were red birds.

NORFOLK.—Dr. B. B. Riviere sends notes of a flock of ten at Mundesley on June 28th, one on board the E. Dudgeon Light-Vessel on June 30th, a flock of eight at Happisburgh on July 8th and one found dead at Bagthorpe on August 17th.

ESSEX.—Mr. C. Oldham saw a flock of about forty near Saffron Walden on October 14th.

KENT.—Mr. H. G. Alexander saw some near Sevenoaks on July 26th and Mr. J. M. Harrison observed some in the same neighbourhood between September 3rd and 15th.

SURREY.—Mr. H. G. Alexander saw some about Reigate between July 14th and 28th, and a good sized flock at Pitch Hill on the 20th.

SUSSEX.—Mr. R. Carlyon-Britton records a party of eight near Chichester on July 17th.

SOMERSETSHIRE.—Mr. C. R. Stonor saw one at Stratton-on-the-Fosse on July 27th.

WORCESTERSHIRE.—Mr. H. G. Alexander notes many signs of their recent presence in parts of north Worcester and saw a flock of a dozen or more on September 17th.

HEDGE-SPARROW TWICE VICTIMIZED BY TWO CUCKOOS.—Mr. A. G. Tayler informs us that near Wychwood Forest, Oxfordshire, on June 2nd, 1929, a nest of a Hedge-Sparrow (*Prunella m. occidentalis*) contained three of its own eggs and two obviously laid by two different Cuckoos (*Cuculus c. canorus*). The eggs were taken and on June 16th Mr. Tayler found within thirty yards of the first nest another nest of apparently the same Hedge-Sparrow with four of its own eggs and two Cuckoo's eggs exactly similar to the two in the first nest.

EARLY APPEARANCE OF ROUGH-LEGGED BUZZARD IN DEVONSHIRE.—Mr. Walmesley White informs us that on September 8th, 1929, on east Dartmoor, he and Dr. McMillan watched with binoculars a Buzzard both flying and at rest, which they clearly identified as a Rough-legged (*Buteo lagopus*). It was in company with three Common Buzzards. Its breast and head were very pale and the basal part of the tail was white.

REVIEW.

The Birds of South-East Devon. By Lewis R. W. Loyd. 176 pp. 6 Illustrations and Map. (Witherby) 1929. 10s. 6d. net.

UP to the present time nearly all local works on ornithology in England have necessarily been based on county lines. The system is not a natural one, and inferior to that planned by Harvie-Brown and Buckley for Scotland, but its convenience is undeniable. In the present volume

Mr. Loyd takes a new line, and defines his limits as that part of Devon which lies east of the River Exe. Devon is, as he states, a large county, rich in bird-life, so that the reader is entitled to look for a more intensive treatment than can be found in such works as D'Urban and Mathew's *Birds of Devon*. We must admit that from this point of view we have found the book disappointing. In the first place, after clearly defining the limits of the region covered, the author includes matter which by no stretch of imagination can be said to have any right of inclusion. Thus, F. O. Morris stated in his *History of British Birds* that a Ptarmigan had been shot on Dartmoor "some years since." The record itself is not only incredible, but so vague as to be almost worthless, even if it were within the bounds of possibility. Moreover, the nearest point of Dartmoor lies many miles to the west of the Exe so that we are left wondering on what grounds the statement is referred to and why the species has been given a place in the list at all. The treatment of the Red Grouse, too, is very similar. A record from Dartmoor prefaces the note, and then we are told that it has been introduced to Exmoor, and that a very few pairs "breed on the county border," but we have very grave doubts whether this has ever occurred within Mr. Loyd's limits. An immature Ivory-Gull was shot at Torquay in 1853 and on the strength of this occurrence it also figures in the list, while even more startling is the appearance of the Ferruginous Duck, whose only claim is that one was shot on Kingsbridge Estuary, at least twenty miles beyond the boundary.

Another defect in the work is that no distinction is made between the definitely recorded species and those of doubtful status. No brackets are employed and species such as Richard's Pipit, which has never been either seen or shot, but which the author thinks may have occurred, figures in similar type to the Tree-Pipit, which succeeds it.

Both Orphean and Sardinian Warbler appear in the list, with cross-references to one another showing that both records refer to the same bird. It was certainly recorded originally as an Orphean Warbler, but as it was described by D'Urban (not Mathew, as stated by Mr. Loyd) as "certainly smaller than the Blackcap," there seems to be no doubt that Saunders was right in ascribing the record to the Sardinian Warbler. The only record of the Firecrest is erroneously attributed to Mr. Allen (p. 51).

The references to the original sources of local records are less precise than those given in the *Birds of Devon*, and in the case of some of the rarer breeding species we think that more definite information might have been given to justify the statement that they breed which appears at the beginning of the article. This applies particularly to the Hen and Montagu's Harrier, the Shag, Golden Plover and Dunlin.

The sketch map is very inadequate and gives no idea of the topography of the district, and this aspect of the subject is also entirely ignored by the author. The illustrations are from photographs by the author and include one of Kittiwakes and Guillemots obviously taken on Lundy, which seems quite out of place in the present work. We should have preferred more figures like the frontispiece, illustrating types of local scenery.

On the other hand, the work contains many useful observations from Mr. Walmesley White and others, which are now rendered available for the first time, and any one who wants a convenient reference work on the local birds of a popular character will find Mr. Loyd's work useful.

F. C. R. JOURDAIN.

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THE BEHAVIOUR OF STARLINGS IN WINTER.

An Investigation of the Diurnal Movements and Social Roosting-habit. Part II.

BY

V. C. WYNNE-EDWARDS, B.A.

6. Diurnal Distribution.

The scattering of birds in the daytime is clearly limited by actual distance as well as by topographical barriers. The principal daily exercise for which the bird provides by its feeding is the flying to and fro ; the greater the distance the more the food required, and the less the time to find it in. The longest distance in this area is 24 miles (G to Crockernwell), but in general the birds do not fly more than five to fifteen miles. The method by which the feeding-areas were surveyed has already been described. Its success depends on the fact that the flight-lines are straight. In one part of the B-area there is an exception to this, for the birds from that roost feed as far away as Ivybridge and South Brent on the east side. Between these feeding-grounds and the roost is an outlying tongue of moor ending in Hemerdon Ball (700 ft.) over which the birds do not fly ; consequently there is a regular highway round the south side of the hill (see Fig. 1).

Elsewhere, however, the lines are so precise that in three cases the position of a roost was inferred within a thousand yards from sights taken many miles off. This raises the "Orientierungsproblem," the issue being very similar to the homing of the pigeon. The problem is essentially to discover whether homing birds find their way by experience or whether they have some means of orientation undeveloped in ourselves. The evidence from homing pigeons and Noddy and Sooty Terns has been summarized by Watson and Lashley (17), who suppose that visual stimuli are effective in the immediate neighbourhood of the "home" (in our case the roost), and further afield some other unknown stimulus guides the birds.

There is sufficient evidence that the same Starlings return day after day to the same feeding-grounds. Campbell (2) says that "what confirms me in this belief is the fact that every morning I have watched the Starlings passing over, about a dozen birds regularly detach themselves from the flock and settle on an ivy-clad tree close by." This same phenomenon was observed in a paddock above the Holt

Wood observation point. On the lower (N) part of Plymouth Hoe there was a flock of Starlings to be observed every morning during January and February. At 9 a.m. on January 4th there were 57 birds; 5th, 57; 8th, *c.* 80; 18th, 58; 29th, 55; February 2nd, 58 plus 18 in two separate flocks; March 16th, 44 (after cold spell). Records were not kept of each day, but this "Citadel Road flock" numbered between 55 and 58 birds on all occasions when they were counted (almost daily), except when joined by another party usually to be seen near the top of the Hoe (*cf.* January 8th, February 2nd). Although none of eight birds ringed on February 12th was recovered in the next three days, it is difficult to avoid the conclusion that the same 55–58 birds returned day after day.

Under these circumstances the flock would be trained over a single course in the same way as a racing pigeon. The whole journey might easily be made by visual stimuli, *i.e.*, by recognition of familiar landmarks. When flying upwind or in misty weather the birds keep close to the ground in their flights, rising like steeplechasers at every hedge. If their course is steered by eye, their knowledge of the route must be sufficiently detailed to recognise each field and hedge, in either direction, and at altitudes varying from twelve inches to two hundred feet. On December 16th at 3.58 p.m. a large flight went over Holt Wood in mist, on the correct course for B-roost. On December 23rd in very thick weather, a flock was seen at Countess Weir, Exeter, flying N.E. at roosting time. The G-roost lies E. by N. On January 29th the following observation was made: "Dull, foggy, drizzling, 8.5 a.m. Small flight searching to pick up bearings; went S.W. over house and turned S. before getting out of sight. Height 50 ft." The normal direction of passage at Holt Wood is S.E.

The last observation throws some light on the problem, but is of little value by itself. No other records are known to me, however, of homing birds watched during their flight in bad weather, and for this reason these three have been given.

The food-supply must be very abundant. A single large pasture is sufficient feeding-ground for fifty Starlings for at least three months (*cf.* Plymouth Hoe), though during the day parties are often seen on the move from field to field. In the neighbourhood of the B-roost the same pasture was regularly black with birds just before roosting time; many of them were feeding, but possibly they found little or nothing to eat.

The speed of flight going to and from the roosts is in the neighbourhood of forty miles an hour, air speed. The effect of wind on the time of arrival is very noticeable; sometimes the birds coming down wind are all in the roost before any arrive up wind.

7. Time of Passage.

The Starling flights are very regular in their time of passage, though there is some variation depending on the weather. On dull days the morning passage is later and the evening passage earlier than on fine days. On consecutive mornings, if the weather does not change, their timing is accurate to within two minutes.

The stimulus which sets them off clearly depends on the light increasing in intensity at dawn and waning towards sundown, and it might be thought that the absolute intensity itself was sufficient. On dull days, however, there is often less light even at noon than there is on fine days at sunrise, so that the mere intensity of light is too variable to act as a stimulus. On the other hand, the rate of increase of intensity is at a maximum, *i.e.*, it is getting lighter most rapidly, at about the same time whatever the conditions of weather. Dr. W. R. G. Atkins, F.R.S., informs me that not improbably this maximum point is a little later on dull than on fine mornings, and under any circumstances it is very clearly marked. It is possibly in this that the stimulus is to be found, and the reason for the slight weather variations.

In the following table a series of observations is given of the time of passage of the first morning flight at Holt Wood, four and a half miles north of Plymouth (see Fig. 1), together with the local time of sunrise and observations of weather conditions.

Date	Weather at Dawn	First Flight. a.m.	Sunrise. a.m.	Difference. mins.	Average Difference. mins.
Dec. 17	Very fine	8. 3	8.14	—11	
18	Dull, cloudy ...	8. 4	8.14	—10	
19	Very dark, fine rain	8.13	8.15	— 2	
20	Fair, bright ...	8. 4	8.16	—12	—8.75
Jan. 1	Very fine	8. 6	8.19	—13	
2	Fair	8. 4	8.19	—15	
3	Fair, ½ o.	8. 8	8.19	—11	
4	Dull, cloudy ...	8.15	8.18	— 3	
5	Dull, cloudy ...	8.13	8.18	— 5	
6	Dull, dark	8.21	8.18	+ 3	
7	Fine, slight haze ...	8. 9	8.17	— 8	

Date.	Weather at Dawn.	First Flight. a.m.	Sunrise. a.m.	Difference. mins.	Average Difference. mins.
8	Fine, slight haze ...	8.11	8.17	— 6	
9	Dull, rather dark ...	8.22	8.17	+ 5	
13	Very fine	8. 8	8.15	— 7	—6.0
16	Very fine	8. 7	8.13	— 6	
17	Fair	8.10	8.12	— 2	
19	Fair	8. 6	8.10	— 4	
22	Fine	8. 2	8. 7	— 5	
24	Fair	8. 4	8. 5	— 1	
26	Very fine	8. 2	8. 3	— 1	
29	Dull, fine rain ...	8. 5	7.58	+ 7	
30	Fine	7.58	7.57	+ 1	—1.4
Feb. 4	Very fine	7.43	7.50	— 7 (1)	
5	Very fine	7.41	7.49	— 8 (0)	
7	Very fine	7.35	7.47	—12 (—4)	
11	Dull, rain	7.49	7.39	+10 (+18)	
13	Fair	7.38	7.36	+ 2 (+10)	
14	Dull	7.40	7.34	+ 6 (+14)	(+6.5)
Mar. 16	Fine	6.44	6.30	+14 (+22)	(+22.0)

The variation with weather conditions thus amounts to twenty minutes in December and January.

The February observations were made after the B-roost had divided (see p. 150). B_1 is 6½ miles from Holt Wood, and B_2 one mile. Consequently, an allowance of about eight minutes must be added to February and March times to make them comparable with the earlier ones. It will be seen in the last column that the Starlings do not quite keep pace with the sun as the year advances. In December they passed Holt Wood on the average 8.75 minutes before sunrise, and in the first half of February 6.5 minutes after. By mid-March the interval is considerably more extended. There is thus another factor involved, besides the increase of light intensity.*

The Starling is one of the latest birds abroad in the morning, and one of the earliest to roost.

8. Non-"Roosting" Birds.

It was possible to establish the fact that some few Starlings do not join the majority at the large roosts. The proportion of these to the remainder is small, but in a few cases individual birds were known to roost singly with some regularity. The S-area has already been mentioned. Here there were definite roosting movements to be observed, but the actual roosts were very small. Forrest (8) records a somewhat similar

* Further investigation of this important question is being undertaken.

case : "At night the Starlings. . . retire to an ivy-clad tree or wall to roost. They may be found occasionally in numbers up to a hundred or two ; but these are only accidental gatherings—very different in character to the big roosts before-mentioned—and the birds do not travel any distance from their feeding-ground ; they merely go to roost in the nearest convenient place." In the S-area the movements observed were, however, regular, and the birds travelled as much as two miles.

On December 22nd, 24th, 25th, 26th and 28th a Starling roosting on the outskirts of Exeter was singing before any flights came over from G. At Tiverton on December 29th a small party was seen some nineteen minutes before. Seven Starlings were seen in Totnes on January 21st at 7.59 a.m., and the first flight from U did not appear until 8.25, the morning being exceptionally dark. Totnes, however, lies in the S-area. On January 23rd Starlings were heard in Plymouth at 7.50 a.m. and the time at which the "roosting" birds arrived was 8.8. Mr. Cox has observed a bird to retire at night into a Woodpecker's hole at Yelverton on more than one occasion, but apart from this the solitary roosters have been in towns. They would be more difficult to detect in the country.

When observing the exodus from B_1 and B_2 on a number of occasions, we have seen odd birds returning to the roost and pitching in during the whole period of the exodus. These may be individuals which have started out in the wrong party returning to re-obtain their bearings ; and they may be birds which have been roosting alone in the neighbouring district collecting to the roost to join the expeditions. This latter suggestion is due to Mr. Cox.

At migration-time (third to fourth weeks of March, 1929) parties of birds were seen on the tree-tops, not intent on flying to the roost. One party of twenty was kept under observation at Tregorrick, St. Austell, on March 19th, from 6.12 p.m. (a time when they should normally have been at their roost) until 6.45, when it became too dark to see them. The same was seen at Roborough on March 22nd, and on that night there was a considerable emigration from B_2.

9. Duration of the Roosting-Habit.

Roosts occupied during the summer by non-breeding birds have been recorded by Campbell (2) on Cramond Island and Savage (14) in Cumberland. The former states : "Mr. W.

Evans estimates the proportion of non-breeding birds as about ten per cent., but the proportion which travelled daily to and from the island seemed to exceed that number." Savage estimated the summer flock at four or five thousand. There are, however, no records of the big roosts being occupied in summer in the south of England, and in this district those which were revisited were completely evacuated by the beginning of April. The departure takes place very rapidly, being practically over within a week.

All through the breeding-season a few small parties of Starlings were observed, but as soon as the first fledglings were feeding for themselves, larger flocks, sometimes as many as two hundred birds (June 23rd, 1929) were formed, and these often roosted close to their feeding-grounds. Definite evening flights were observed in late June and July, but the regular winter roosts were not occupied. Indeed, the state of affairs is very different from that obtaining in winter, although it is easily seen how one would pass gradually into the other.

Large scale roosting flights begin in Yorkshire (Kirklington, N.R.) in mid-September (15th, 1926; 11th, 1928). Clinton (4) gives the date for the arrival at H as the second week of October. On October 5th, 1926, the evening movement was seen at Dawlish Warren (G-area). It appears from Mr. Cox's records that the flights do not become prominent in the Plymouth district till the first and second weeks of November. This graduation in the inception of winter conditions may be due to the earlier arrival of Continental immigrants in the north than in the south.

On March 23rd, 1929, Mr. Cox was present at B_2 when an emigration took place. The majority of the birds had departed the previous night, but the remainder came in to roost at about 6.30 p.m. The evening was fine, and there was a slight southerly breeze: the moon almost full. Sunset was at 6.33. At 7.15, 7.20 and 7.25 parties estimated at two or three hundred left the roost and flew over the observer in an easterly direction. At 8.30 p.m. another flight of wings was heard passing over, but mist had filled the valley and obscured the moon. From then till 10 p.m. no further flights took place.

This interesting observation bears out Eagle Clarke's (3) conclusion at the Eddystone that the migratory movement begins in the hour following sunset. It should be remembered that these birds had been out feeding all day.

10. Roosting of Other Species.

Starlings sometimes associated with Redwings in their roosts in this country, and with Purple Grackles in the United States (MacReynolds, 12). Two cases are known to me where Redwings had occupied the site before the Starlings came, and for a time continued to roost with them, namely at Huish (H) (Clinton, 4) and B_2. At the latter the Redwings were driven out of the main cover, and roosted on the surrounding gorse-brake after the Starlings arrived.

It is not generally realized how widespread the roosting-habit is in winter. Twelve species of birds in this district have been traced to roosts, sometimes of considerable size; they perform their diurnal movements with great regularity. They are :—

Starling (*Sturnus v. vulgaris*)
Magpie (*Pica p. pica*)
Jackdaw (*Corvus m. spermologus*)
Rook (*C. f. frugilegus*)
Fieldfare (*Turdus pilaris*)
Redwing (*T. musicus*)
Pied Wagtail (*Motacilla a. yarrellii*)
Chaffinch (*Fringilla c. cœlebs*)
Greenfinch (*Chloris ch. chloris*)
House-Sparrow (*Passer d. domesticus*)
Yellowhammer (*Emberiza c. citrinella*)
Wood-Pigeon (*Columba p. palumbus*)

In addition to these, the three Gulls, *Larus a. argentatus*, *L. c. canus* and *L. r. ridibundus*, and the Curlew (*Numenius a. arquata*) undertake movements of a closely related character, which form the subject of another investigation in progress.

The best known of these as roosting birds are the Rook and Jackdaw, which consort together as a rule. In this district mention may be made of three very large roosts, at Derriford, near Plymouth; at Sowton, near Exeter; and at Frogmore, near Crediton. In these there are perhaps tens of thousands of birds. By the end of December the Rooks collect at their rookeries late in the afternoon, and then move off in parties, often for as much as five miles, to the roost, which itself occupies the site of a rookery. When nesting operations commence in mid-February the Rooks cease to leave their rookeries at night to roost, but the Jackdaws continue to do so until the beginning of May. At this time they spend most of the day at their nesting colonies, and fly to the roost (where resident Rooks have already hatched their eggs) in pairs or small parties.

A big Greenfinch roost was discovered by Mr. Cox at

Werrington Park, Launceston. Roosts of the small passerine birds are not usually large, and may only serve a feeding-area of a few square miles. At present no attempt has been made to survey an area for other species than the Starling. The movements of shore and sea-birds are concerned with inland feeding; Herring-Gulls are known to go twenty miles to and fro in the Exe valley, but it is probable that birds seen further inland than this roost on inland waters.

II. The Gregarious Habit.

"The advantage of gregariousness . . lies, no doubt, in the increased security against enemies. Sometimes the enemy may be turned away by force of numbers, but more often safety is sought only in flight, and the advantage lies in the greater watchfulness of the feeding or resting flock as compared with the solitary bird." (Thomson, 16, p. 96). Again (p. 103): "It seems probable that where the association is more than accidental it arises from the instinct of self-preservation which finds safety in the watchfulness or possibly the strength of the flock. Indeed this is probably the underlying factor of all instinctive gregariousness." This idea of the watchfulness of the flock in the day-time is very suggestive.

In our experience, Kestrels (*Falco t. tinnunculus*) and Buzzards move off when caught near the roost by the incoming flights. Owls enter the roosts at night, and have been heard to kill a Starling. At H a Peregrine (*Falco p. peregrinus*) lived for some weeks on Starlings; Mr. Jourdain has called my attention to H. M. Wallis's record (16a) of a large flight being attacked on the wing by this Falcon, and remarks that some Peregrines feed largely, almost normally, on Starlings. Other birds of prey take extraordinarily little interest in them however, either because their taste is unpleasant, or because their array in flight is too formidable.

Their collection to a roost, however, is quite unnecessary to protection; a hundred birds together would be as sufficient by night as they are in the fields by day. Neither is it due to lack of suitable sites. When the birds are moved from one roost they seldom go above a mile before they find another (*cf.* B, U, H). It is almost impossible to stir them once they have settled down for the night; owls may come as they will, and guns be discharged in the midst of the roost, without disturbing more than a score or two of birds. They are not watchful by night; mutual protection at that time

means nothing. Indeed, with some care, they may be picked off the branches where they sleep.

Some slight advantage may be derived from the warmth they afford by perching so close together, but this must be purely secondary, and a positive disadvantage in summer.

Social roosting is thus due neither to the need for protection nor to lack of sites.

The gregarious habit has a practical value when the birds are feeding by day. If one bird finds a rich feeding-ground the others will share it. If one bird sees danger approach, all the rest will follow him in flight. This was no doubt the evolutionary origin of the habit. Similarly, the roost was a place where birds scattered in the course of the day might be sure of joining their flocks before the morrow—an appointed rendezvous. And here may be found the reason of the traditional locality. If the site is destroyed, the birds find the *nearest* convenient place for their roost, so that it may be easily located by birds whose knowledge of the country is limited to a single flight-line. In the Tamar valley the flight-lines from the sector between S.S.E. and S.W. still converge on the Hole's Hole site, and from there the birds follow the valley to B_1. Cummings (6) gives a plan of an apparently similar case.

If experimental investigations could be made upon birds in their wild state, no more interesting problem could be undertaken than to discover the manner in which the magnificent manœuvres of the Starling are conducted. Movements may begin in the rear of the flock and pass forwards, or in the middle or the flanks, as well as in front. The possibility of a single bird being the leader by visual stimuli is untenable. On this point an observation of Mac Reynolds (12) is interesting. "Strangely enough," he says, "a line of Purple Grackles was in the forefront of the army, their larger size and darker colour making them conspicuous. In fact the Grackles seemed to endeavour to keep on the outer edge of the mass as much as possible, and they were noticeable because they had difficulty in falling in with the rolling and more graceful flight-gyrations of their more numerous companions, the Starlings." The stimuli received by them may have been visual, thus accounting for their lesser agility. It is, however, reasonable to expect that a unit which "has almost the appearance of being itself a living creature" should have some means of communication as intimate as between the different parts of the body.

12. Conclusion.

This account of the social behaviour of the Starling is no more than an outline. The frequent recurrence of the words "possibly" and "perhaps" is in itself an indication of how much remains to be discovered. It is by the study of single problems and single species that ornithology may be advanced, and that questions of economic importance may be decided. Unfortunately, no opportunity is given in this country for the continuous study of birds by zoologists, and what work is done is done in spare moments. Something, however, may be achieved by the co-operation of amateur ornithologists, and I have to thank all those who took part in this survey.

"Sturnorum generi proprium catervatim volare, et quodam pilæ orbe circumagi, omnibus in medium agmen tendentibus."

Pliny, *Nat. Hist.*, X., 35.

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BIRD BEHAVIOUR.

BY

PERCY R. LOWE.

AMONG ornithologists Mr. Eliot Howard is already famous as being the author of two books which marked a definite departure in the study of the ways of birds in relation to their natural haunts. One of these books was entitled *The British Warblers* (1907–1914) the other *Territory in Bird-Life* (1929). Both were very notable contributions to our knowledge of the intimate life of birds, and one of them was remarkable for that very rare gift, the expression of original thought. In it were embodied the discovery of new facts in relation to the behaviour of the bird, as well as a critical review of the factors which underlie, or initiate, some of those familiar actions, which in the past were either ignored altogether, or, if recognized, were simply taken for granted as being avian.

It is clear, however, that these two books were, in a sense, preparatory, that they were heralds, so to speak, of what was to come; for in both we can trace not only the gradual elaboration of the author's method and purpose in bird-watching, but the evolution of those new thoughts and ideas which were fermenting in his mind in regard to the causes which gave origin to the actions which he witnessed.

In Mr. Howard's new book, now under review,* these thoughts and ideas have grown to fruition and to a fuller and more definite expression, aided as they have been by the application of physiological facts and theory to the elucidation of the problems arising out of observed facts.

It is this intensive study of the birds' behaviour during the reproductive period from a physiological aspect which makes Mr. Howard's latest work so extremely interesting, so novel and such a valuable contribution to ornithology.

Thus it is no mere conventional method of phraseology which prompts us to declare that this book is likely to remain a classical contribution to the physiology of bird behaviour. It has not only blazed the track to a new country of thought and fact which the serious student of ornithology will be bound to follow; but it will, in our opinion, open up to the general student of biology new vistas in his conception of the factors which govern the actions of animals in general. One might almost say that it will be the bounden duty of every

* *An Introduction to the Study of Bird Behaviour.* By H. Eliot Howard. Illustrated by G. E. Lodge. Cambridge University Press, 1929. 42*s.* net.

physiologist to read Mr. Howard's book, not because he will learn any new physiological facts therein as physiological facts, but because the actual facts observed and recorded, together with the deductions therefrom, are bound to give a fresh lead to the study and correct appreciation of "animal" actions and habits, as opposed to those reasoned actions, which, for our present purpose, we may shortly refer to as "human."

In reading Mr. Howard's book it is, for instance, difficult not to be confirmed in one's previous conviction that almost every avian action is the outcome of the reflex response of a perfect piece of animal automatism to either internal secretions or external impressions or to both combined. Thus the many and varied modes of behaviour peculiar to the breeding-season are, as the author maintains, susceptible to the same influences; they wane under prolonged excitation; the strength of one is in proportion to the strength of another; the stimulation which excites one excites another, or two or more others, and so on; so that as he goes on to say "we agreed to regard them, not as separate entities, but as a *neurally-linked pattern of reactions for which there was inherited structural provision*" (italics ours). Given a certain rhythm of seasonal change with its attendant circumstances, and a certain corresponding interplay of internal secretory glands, and the bird responds with almost the same inevitability as the muscle-nerve preparation of the physiologist.

In such terms, as we have quoted above, you may, at any rate, explain the way a bird behaves; but whether this is instinct, or what instinct actually is, is not our business to define here. Mr. Howard does not think it is his business either; he prefers to use the word "reactions" or the phrase "a neurally-linked pattern of reactions," and we venture to think he does well to steer clear of the rocks. Herbert Spencer defined instinct as "a compound reflex action." Charles Mercier (*Brain—A Journal of Neurology*, 1889) defined a reflex action as a "determinate reaction to stimulus." Instinctive actions he regarded as resembling reflex actions in being determinate, but as differing from them in being spontaneous, and not reactions to stimulus. Thus, as he maintained, they are determinate spontaneous actions. Reasoned acts differ, he says, from both in being indeterminate. But Mercier's views were based on a purely neurological standpoint, and in the light of more recent knowledge connected with the action of endocrynes we very much

doubt if they would satisfy the equation. For instance, it will probably be generally agreed that the actions of a bird in brooding her young and removing excreta from the nest are instinctive. But listen to these words of Mr. Howard's :—

"Transfer the young into a second nest placed beside her own ; she broods the empty nest, works her legs and fluffs out her feathers in order to get the young into a comfortable position—and behold they are not there : place leaves in the nest, she tries to swallow them as she tries to swallow excrement ; move the nest into a strange position, her bewilderment is so great that after feeding her young she pulls moss and grass from the rim and carries that away instead of excrement."

Here we have actions which we have agreed to call instinctive, which although determinate, in a sense, are surely effected or affected by stimulus—a stimulus which, as it would seem, is to a very large extent originated by the action of internal secretions affecting the mode of behaviour of the bird during the breeding-season. Given a certain receptive condition and the empty nest, too, is just as good a stimulus as one full of young, a leaf just as good to provoke a certain train of instinctive actions or neurally-linked reactions as a morsel of excreta.

This example of a neurally-linked pattern of reactions may not be altogether the best that might have been chosen, but it will suffice as being one, like scores of other actions, which the author considers from a purely physiological point of view. But, as he affirms, there is a mind story as well as this exposition of neurally-linked patterns of reaction, though, as he says, "some may doubt it." This mind story is specially considered in the last chapter. It is extremely interesting and must be read to be appreciated at its own proper value.

So far as I am aware, this attempt to interpret the actions of a bird throughout the entire reproductive period in terms of internal physiological impulses and external expressions is the first that has been made in a comprehensive way, although the effects of photoperiodism and hormones on the phenomenon of migration and other actions have been studied by Rowan and others, while I think it is true to say that I was myself the first to apply, in the domain of ornithology, the knowledge gained by physiologists on the action of internal secretions as, for instance, to explain the song of birds in the breeding-season (cf. *British Birds*, 1909, Vol. III., p. 183). At any rate, this much can be said, that never before has such an attempt been made on so thorough-going and informative a scale.

Whatever views or reservations, moreover, may be held as to Mr. Howard's deductions they have this immense value, that they are based on observed facts, acquired with that patience, persistence and attention to apparently trifling details, which one is accustomed to associate with a kind of genius. It is these apparently trifling details of facts, hitherto neglected and now dragged forth to the light of scientific day for critical examination on a physiological basis, which render Mr. Howard's work such a notable contribution to science of which ornithology may well have reason to be proud.

To obtain those facts entailed, as we have just said, an almost incredible patience and persistence of purpose, not spasmodic, but throughout the entire reproductive period. Certain birds, for instance the Reed-Bunting and Yellow Bunting, had to be watched continuously throughout this period, beginning with the cold and chilly days of early February and ending with the feeding and care of the young in May and June. It entailed getting up on raw February mornings before sunrise, not so much in order to watch the routine behaviour of individuals in the winter flock, but to be able to catch and record the very first symptoms of a response to reproductive endocrynes as expressed in the actions of individual males or females; actions which, although necessarily at first somewhat vague and ill-marked in correspondence with the feeble activity of the awakening glands, nevertheless differed *definitely* from the actions of the winter flock routine and were of the very first importance as marking the earliest response to those internal secretions, or hormones, which, as their activity grew more and more impulsive, were to govern the actions of the bird, male or female, throughout the entire reproductive period.

The book itself has been produced in sumptuous style and is beautifully and appropriately illustrated by Mr. G. E. Lodge. The subject-matter is dealt with under six headings: (1) An explanatory preface; (2) Behaviour of a Reed-Bunting; (3) Behaviour of a Yellow Bunting; (4) Analysis of Behaviour; (5) The whole has value, the parts by themselves have none; (6) An approach to a mind story.

THE ACT OF EVICTION BY A YOUNG CUCKOO.

BY
F. HOWARD LANCUM.

(Plate 7).

For many years I have been trying to obtain some really good photographs of the act of eviction by a young Cuckoo (*Cuculus c. canorus*), and after numerous failures and a partial success I was glad to have secured the photographs here reproduced.

The egg from which this young Cuckoo hatched was originally deposited in the nest of a Pied Wagtail, but as this was deserted when incubation was far advanced, I transferred the egg to the nest of a Yellow Bunting (*Emberiza c. citrinella*). On May 28th or 29th, 1929, the Cuckoo's egg hatched and on the 30th I found that the young Cuckoo had already thrown out the Yellow-Hammer's eggs. I replaced one of these and the Cuckoo without the least hesitation ejected it. Realising that here was a possible opportunity of getting some long-desired photographs, I returned home for a camera. The light was good, rendering possible a short exposure; the nest was built low down on a bank and could be easily approached, and the surrounding herbage could be readily drawn back. Further, the Cuckoo seemed bent on repeating its performance. Discovering that it objected to the bright sunlight, and when in its glare gaped as if distressed and ceased from its labours, I shaded the nest while waiting for the Cuckoo to recommence its work, and only allowed the sun to shine upon it when making each exposure. A dozen photographs in all were taken, and the six reproduced here represent the best of them.

I should like to make it clear that these pictures were not taken in one straight series. The time factor alone precluded such a possibility with the type of camera used. The Cuckoo evicted the egg in my presence many times, and each photograph, illustrating a particular stage of the process, was taken during a separate eviction. I had, moreover, to wait for such movements as occurred on the lighted side of the nest. At intervals during the morning I left the nest in order to give the hen Yellow-Hammer a chance of attending to the Cuckoo, and before finally leaving I rearranged the herbage.

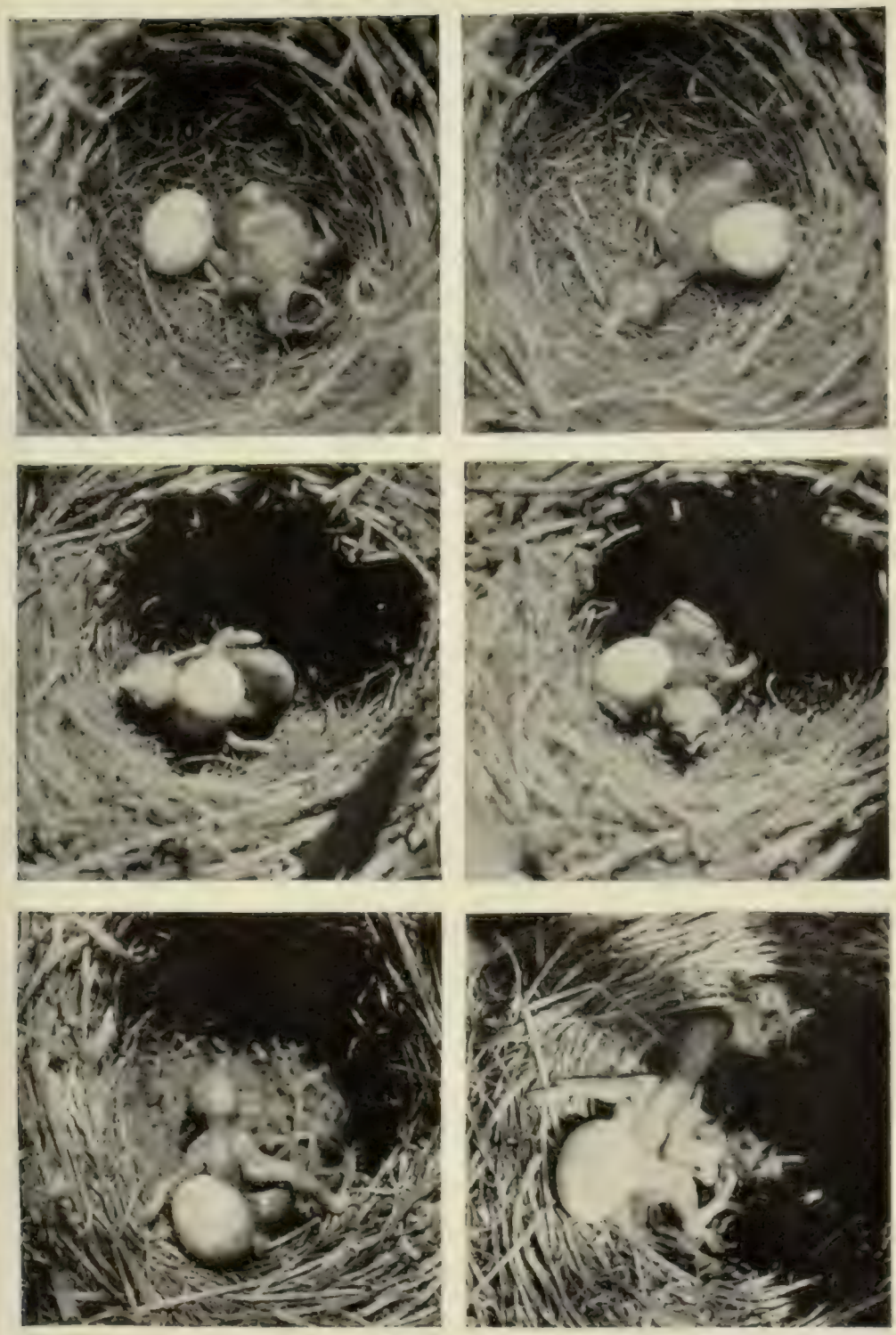
I would put on record an interesting fact in connection with the photographing of this Cuckoo. In the first place, I may say that I have taken careful notes of the times required by other young Cuckoos to evict a foster-parent's egg, and have

found that on an average something like three and a half minutes have been occupied, and I have watched young Cuckoos which took from three to six minutes to effect a single eviction. Now, although the Yellow-Hammer's nest was a fairly deep one, and this particular Cuckoo evicted the egg at least a dozen times, in only one instance did it require more than twenty seconds to accomplish the act. This is very remarkable and quite at variance with my previous experience.

A few notes descriptive of the photographs themselves may be of interest. In the first picture, taken during a lull in the Cuckoo's activities, the bird is seen to be energetically demanding food. In the second it is getting under the egg, which it accomplished by insinuating a wing and wriggling until the egg rolled inwards, assisted by the wing. In the third photograph the Cuckoo has the egg nicely in position and well balanced, and is about to move over to the wall of the nest, to which it is gradually turning its back. It held the egg in place by means of its raised wings and backward tilted head and at no time did the egg seem to be in danger of rolling off its back. In the fourth photograph the egg is being pushed up the side of the nest. It is at this stage that the Cuckoo performs what is to my mind the most remarkable of its feats. The bird, in order to reach the rim of the nest, has perforce to climb with its feet, while still holding and balancing the egg on its hollowed back. A little consideration enables one to appreciate the magnitude of the task, for the egg is nearly as heavy as the Cuckoo itself, the bird's eyes are unopened and all that it does must be done blindly, and it has, thus burdened, to climb an almost perpendicular wall. One realizes at once the necessity for the abnormal development of the young Cuckoo's feet.

In the fifth photograph we see the Cuckoo at the rim of the nest. The bird pushes out the egg backwards, preventing it from rolling aside by means of its outstretched wings. It works backwards because it has to. Even if it were possible for it to climb with the egg while facing the wall of the nest, it could hardly turn and safely throw the egg forward over its head. As will be seen from the photograph, at this stage it has a strong grip with both feet on the nest material.

In the last photograph the Cuckoo is administering the final push. This was extremely vigorous and was delivered with such determination that the bird itself all but followed the egg. It did, in fact, regain safety with difficulty. It lost its hold with one foot and it was only by grasping the rim of the nest with a wing that it was able to preserve its balance.



The act of eviction by a young Cuckoo.
(*Photographed by* F. Howard Lancum.)

BRITISH MUSEUM
Z O
NATURAL HISTORY

NOTES

THE INCUBATION- AND FLEDGING-PERIODS OF SOME BRITISH BIRDS.

THE following cases during 1929 are from west Sussex :—

Species.	Incubation period in days.	Fledging period in days.	Total in days.	Period of year of Observation.
Greenfinch (*Chloris ch. chloris*) ...	—	—	25 or 26	May–June
Pied Wagtail (*Motacilla a. yarrellii*)*...	—	14	—	June
Spotted Flycatcher (*Muscicapa s. striata*) ...	12–13	—	—	July
Sedge-Warbler (*Acrocephalus schœnobænus*)	12–13	—	—	June
Ditto ditto	11–12	11	22–23	July
Blackbird (*Turdus m. merula*) ...	14	15	29	March–April
Hedge-Sparrow (*Prunella m. occidentalis*)	13	15	28	March–April
Ditto ditto	11–12	—	—	April
Ditto ditto	—	11	—	June
Moorhen (*Gallinula ch. chloropus*)	19–20	—	—	June–July

RAYMOND CARLYON-BRITTON.

BREEDING STARLINGS RESORTING TO A ROOST.

IN section 9 of his valuable paper on Starlings' roosts in Devon, Mr. Wynne-Edwards refers to the Rev. E. U. Savage's observations made in Cumberland, where he found Starlings resorting to a winter roost throughout the summer, and on shooting some in June, 1922, the large majority of these proved to be non-breeding birds. One adult male in breeding condition was, however, among the birds sent to me by Mr. Savage for examination (see *Brit. Birds.*, Vol. XVI., pp. 77–8).

Earlier in the breeding-season of the following year (1923) Mr. Savage kindly sent me more Starlings from this roost. The results were surprising owing to the large proportion of adults in breeding condition. A report was not published at the time as we hoped to be able to get observations from other districts where roosts were resorted to in summer. As these have not been forthcoming it seems advisable to

* Young left nest June 23rd, 1929. Next brood, two young out of five flew August 5th, 1929. Forty-three days from former brood flying.

publish now the results of the examination of these birds sent in 1923 by Mr. Savage, and they are printed below :—

1923. April 12th. Four Starlings.

Female adult by plumage. Ova well developed but eggs had not apparently been laid this year.

Female adult by plumage. Ova well formed but smaller than in No. 1.

Female, first summer by plumage. Ova small and oviduct thin and straight.

Male adult by plumage. Testes very large and in breeding condition.

April 19th. Eight Starlings.

Four adult males in breeding condition.

Two males, adult by plumage, but breeding organs much smaller.

One adult female with a large ovary and a large yolked egg. A laying bird.

One female adult by plumage, but ova small. Not breeding.

April 26th. Six Starlings (examined by N. F. Ticehurst).

Four adult males in breeding condition.

One male, first summer by plumage. Testes enlarged but not a breeding bird.

One adult female with oviduct in breeding condition and one large ovum. Had laid. Well developed incubation patch.

May 2nd. Six Starlings.

All adult males in breeding condition and with well-marked incubation patches. The breeding organs and incubation patches varied slightly in size.

May 10th. Three Starlings.

Two adult males with large breeding organs and small incubation patches.

One adult male with large incubation patch but much smaller breeding organs, probably due to its having bred earlier than the others.

May 23rd. Six Starlings.

Two adult males with fairly large breeding organs, one with a well-marked incubation patch but the other with no trace of this.

Four males, first summer by plumage. Two with very small organs had not bred. Others with much larger organs, but with no incubation patches and doubtful if bred.

It would seem from the above that at this roost a large proportion of the birds from April 19th to May 23rd were adult breeding males. The presence of the two breeding females (April 19th and 26th) may have been due to loss of mate or nest. The conditions prevailing at this particular roost may have been unusual and the results certainly call for further investigation into the composition of the flocks resorting to roosts in summer.

I take this opportunity of pointing out that the Starlings resorting to London for roosting do so all through the breeding-season, and though their numbers then are much diminished as compared with the late summer and winter they are still large. Although it may not be possible to obtain birds for

examination, much might be learned by a detailed investigation of the roosting-habits of the Starlings in London. This could only be done by the co-operation of a number of observers in and around London and I shall be glad to hear from any reader who would be willing to assist in any way if such an investigation were decided upon. H. F. WITHERBY.

STARLING NESTING IN FORK OF TREE.

IN 1927, 1928 and 1929, the Starlings (*Sturnus v. vulgaris*) at Barbon, Westmorland, have had great difficulty in finding nesting-holes. I have watched them each year searching houses and buildings and trying to build in quite impossible places.

I was not surprised this year to find a Starling's nest in a fork at the top of a fir tree in my garden. The nest was somewhat like that of a Mistle-Thrush, but more untidy.

E. U. SAVAGE.

INCUBATION-PERIOD OF SKY-LARK.

WITH regard to Mrs. A. Seton Gordon's note (*antea*, p. 126) on the incubation-period of the Sky-Lark, I had under observation this year (1929) a nest of this species at Mawgan-in-Pydar, north Cornwall.

The fourth egg of the clutch was laid on July 7th. On July 18th three eggs were hatched, the fourth proving to be addled.

The nest was intact but empty, except for the addled egg, on July 25th. Although I could not find the three fledglings, I have little doubt that they were crawling about, hidden somewhere in the long grass, for I saw both parents flying normally to and fro with food in their bills.

The weather throughout the whole period was dry and hot.

B. H. RYVES.

SPOTTED FLYCATCHER *v.* HOUSE-SPARROW.

DURING June, 1929, a pair of Spotted Flycatchers (*Muscicapa s. striata*) began to build a nest upon a ledge at the School Sanatorium, Harrow-on-the-Hill (Middlesex). When they had been at work for two days a pair of House-Sparrows (*Passer d. domesticus*)—with a nest about twenty feet away—began to molest them, and for the next week the Flycatchers were seldom allowed to work in peace for more than ten minutes at a time, as their nesting material was constantly stolen.

Nevertheless, four eggs were laid and incubation commenced. But the House-Sparrows continued their assaults

with redoubled vigour, and now attacked the birds rather than the nest, so that (on the sixth day of incubation) the Flycatchers were compelled to desert.

When the nest was examined, two of the four eggs were found to have a small jagged-edged hole piercing the shell, whilst a third was cracked. Apparently no attempt had been made to suck or remove the eggs, and no weasel or stoat could have possibly reached the nest. Therefore it seems only reasonable to suppose that this was the final act of the Sparrows (probably subsequent to the desertion of the nest). The Flycatchers were seen no more, and the Sparrows reared their brood without further strife.

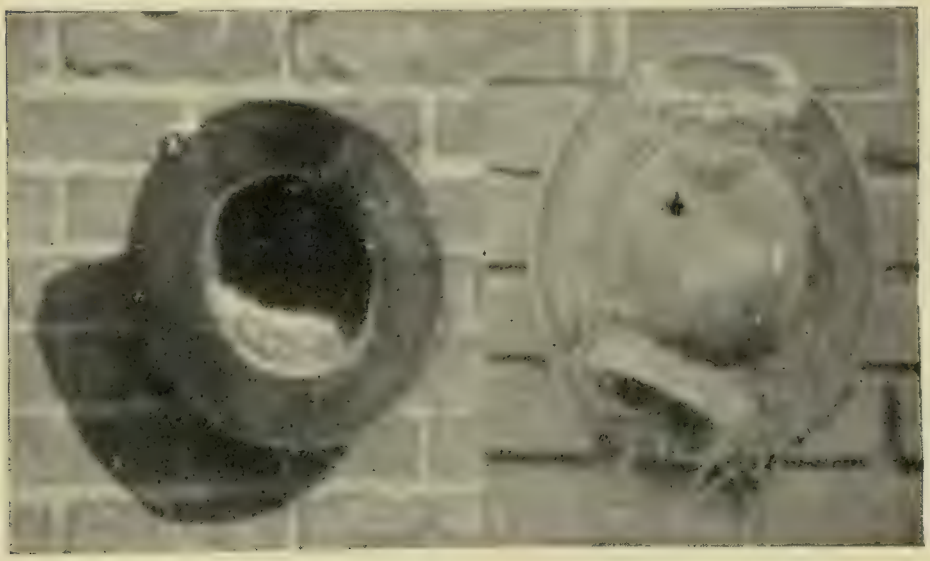
Mr. H. W. Robinson has recorded (Vol. XX., p. 105) a case of Spotted Flycatchers attempting, but failing, to take possession of the nest of a pair of Swallows, and Mr. H. A. Gilbert has described the pugnacity of the Pied Flycatcher (*Muscicapa h. hypoleuca*) in the nesting season (Vol. XXII., p. 188).

But such a contest as that described above seems to be somewhat exceptional, and as I was able to observe it from beginning to end I venture to record it in detail.

T. H. HARRISSON.

THREE SWALLOWS' NESTS ON A HAT.

THE hat, of which two photographs are here reproduced, was found hanging in a disused stable in Lincolnshire. Three



nests of Swallows (*Hirundo r. rustica*) had been built upon it. The hat had been turned round at some time, as is evidenced by the two nests on the brim.

F. K. STAUNTON.

SPOONBILLS IN SUFFOLK.

On September 9th, 1929, two Spoonbills (*Platalea l. leucorodia*) appeared on a tidal river in Suffolk. On one occasion between this date and October 18th, when they seem to have taken their departure, I was able to observe them at very short range and with the aid of my glasses saw black on the primaries when the birds were preening themselves, denoting that they were immature. One of them was lame, and possibly this disability was the reason for their exceptionally long visit.

J. B. Watson.

GARGANEY IN MERIONETHSHIRE.

On August 18th, 1929, while my mother and I were watching some Mallard on a small pool near Towyn, much to our surprise a Garganey (*Anas querquedula*) alighted on the water. It was tamer than the Mallard and kept apart from them. The pool was very small and we were only some fifty feet from the bird. It was evidently in eclipse, or partial eclipse plumage, but as large patches of light grey on the wings showed up very conspicuously when the bird was in flight and there was a noticeable stripe of white on the wing when it was on the water, it would appear to have been a male.

J. D. Wood.

GARGANEY IN ORKNEY.

Mr. Alfred Wood, of Finstown, informs me that a young female Garganey (*Anas querquedula*) was shot at the Oyce Firth on September 9th, 1929.

The bird was not preserved, but it was carefully examined and identified by Mr. Wood.

The only previous actual record of the bird's occurrence in Orkney would appear to be in 1820.

Duncan J. Robertson.

PINTAIL NESTING IN NORFOLK.

On April 20th, 1929, M. J. Ingram and I were quartering some ground in Norfolk when I flushed a duck from a single, greenish and rather small egg. The bird pitched about twenty paces away and remained with outspread wings for a few seconds and then flew to a nearby mere. Its colouring was rather light and I noticed that its bill was bluish. I hoped that we had found the nest of a Pintail (*Anas acuta*), and when we saw, on another mere, two drake Pintails and another duck (the odd drake keeping by himself) we felt even more hopeful.

Finding that there was no authentic record of the Pintail ever having nested, in the wild state, in England, we realized that very much more evidence was needed.

On April 29th we put the duck off eight eggs, which were now in a large heap of down ; the latter looking very conspicuous in the sparse bracken which surrounded the nest. Now that she had laid her full clutch she was much more demonstrative : she did not leave the nest till we were within a few feet ; then she pitched about ten paces away and lay forward on her breast, with her tail spread, and wings just open. As she turned round to look at us, the long sinewy neck, graceful head and blue-grey bill were conspicuous ; and there remained no shadow of doubt as to her being a Pintail. She remained thus for a few seconds, and then with wings fully spread she trailed her way across the uneven ground, and when she was about twenty yards from us, flew low to the nearest mere, a distance of a few hundred yards. There she was immediately joined by a single Pintail drake. The testimony of the down, which proved to be typical of a Pintail, and the measurements of one egg, which I reluctantly took to furnish concrete evidence, confirmed our identification.

I might add here that Miss E. L. Turner, Dr. B. B. Riviere, Mr. T. A. Coward, and Canon Raven, amongst others, all saw the nest and the sitting bird, and none of them evinced any doubt whatsoever.

Being anxious not to disturb the bird we left her in peace till May 22nd when we expected to find the eggs hatched. We were much relieved to see six ducklings scatter wildly as the mother left them. The youngsters were grey and silvery ; the eye-stripe showed no touch of yellow. I had heard that pike made terrible depredations on the young ducks of this mere, but I was horrified to see only two young following the Pintail when I next visited the place. Whether these two were successfully reared or not, I cannot say.

I made careful enquiries in the neighbourhood but could not hear of any Pintail having escaped or having been liberated from captivity.

This year seems to have been exceptional for Pintails. On May 22nd I saw a drake on a mere at least eight miles from the nest recorded above. On May 6th several of us were watching Garganey on a fen only a few miles from Cambridge, when we were amazed to see a pair of Pintail swim out of the rushes and start preening themselves.

The egg and remains of the nest are going to be deposited in the Norwich Museum. F. S. CHAPMAN.

[Mr. Chapman has submitted to us for examination the nest-down and feathers which he took after the young were hatched and the one egg. These are all quite typical of the Pintail. We congratulate Mr. Chapman not only on making the discovery, but on the great care he has taken to verify his identification. We understand that a nest of a second pair of Pintail was found in the vicinity and that details will be published shortly by Mr. A. H. Evans.—EDS.]

LONG-TAILED DUCK INLAND IN NORFOLK.

ON October 21st, 1929, I saw a small duck on the pond at Hanworth Hall, Norfolk. When diving it sometimes slightly raised its wings, then swam under water, often remaining under between 26 and 30 seconds. The dive was sometimes so shallow that the bird's back showed above the surface. It was a Long-tailed Duck (*Clangula hyemalis*), an immature male, and remained eight days on the pond, and was not at all shy. M. BARCLAY.

RED-BREASTED MERGANSER NESTING IN CO. WEXFORD.

THE Red-breasted Merganser (*Mergus serrator*) is undoubtedly extending its breeding range in Ireland, but has not apparently been recorded as nesting in co. Wexford. On August 15th, 1929, on Lady's Island Lough, the big, brackish lagoon west of Carnsore Point, there were many Mergansers, some in groups that suggested family parties; but the young birds were too big to preclude altogether the possibility of their having flown for some distance. About the nativity of one family there was, however, no doubt: a brood of flappers, still unable to fly, squattered out from the bank at my feet and joined the old duck, which had preceded them and was swimming in fussy alarm on the open water.

CHAS. OLDHAM.

A NUPTIAL DISPLAY BY WOOD-PIGEONS.

IN St. James's Park on August 13th, 1929, I witnessed a remarkable nuptial display by a pair of Wood-Pigeons (*Columba p. palumbus*). Before that date my experience had been that courtship among pigeons was purely a male demonstration, but on this occasion the actions were mutual and were quite new to me.

The birds were on the grass and people were constantly passing them. When I first caught sight of them the male

was making advances and was apparently about to pair when the hen made a peculiar hop. Actually this frustrated him, but it was not intended to do so. It was a formal hop such as one might perform in a dance, not a progressive hop after the manner of the Thrush seeking food on the lawn. The bird described an arc in the air and stood still. Instead of pursuing her more ardently, as he would have done if she had walked away from him, the male was diverted from his immediate object and made a similar hop. This action they repeated several times alternately and then the hen thrust her head behind her wing, which was extended slightly from her side, but not expanded. She appeared to be pecking at something and when she withdrew her head, her bill was wide open in a way that suggested that she was holding some large, invisible object. This whole measure was also duplicated by the male and then they repeated it alternately three times. Then they returned to the hopping and alternated this with the other measure repeatedly until they were interrupted by two more Pigeons which had been attracted by the performance and apparently wished to participate in it. The cock drove them off and returned to his mate, but by this time she had cooled and would have no more of it.

I imagine that the thrusting of the head behind the wing and the exhibition of the open mouth were a suggestion of the feeding of chicks by a brooding hen, and as they are performed by the cock as well as by the hen, they have apparently become conventionalized and, combined with the hopping, form a kind of nuptial dance. But I have not so far found an explanation of the peculiar hop.

On the following evening, not far from the same spot, I saw a cock Wood-Pigeon pursuing a hen and he made this same hop once, but got no response. C. S. BAYNE.

LITTLE STINT IN MIDDLESEX.

ON September 27th, 1929, I saw at the Brent Reservoir, Middlesex, feeding with three Ringed Plover, a Little Stint (*Calidris m. minuta*). Mr. J. P. Hardiman informs me that he saw what was probably the same individual two days after I did. It was again feeding with the Ringed Plover, and it was seen again by Mr. T. H. Harrisson on October 1st. I last saw it myself on October 2nd, but on October 4th failed to find it.

This is apparently the first record of the bird for Middlesex for over sixty years. The previous records are August, 1862,

May and October, 1863, September, 1864 and June, 1865 (Harting's *Birds of Middlesex*), all at the Brent Reservoir. The regularity of the bird's occurrence indicates that it has been overlooked in more recent years. DAVID L. LACK.

[In his "List of Birds of the Lower Brent Valley" the late R. H. Read states of the Little Stint "frequently seen at the Reservoir," but the last actual date given is of two shot in 1868.—EDS.]

BLACK-TAILED GODWITS AND DOTTERELS IN DURHAM.

ON August 28th, 1929, eight Black-tailed Godwits (*Limosa limosa*) appeared on the Darlington Sewage Farm. Some were in partial summer plumage and in all the white wing-bar was conspicuous. At first they were very tame and could be approached to within twenty yards, but later became exceedingly wary. Three were still present on September 12th and the last was seen on October 5th. I noticed three different notes: "cok" or "cok-cok," a note like the Bar-tailed Godwit's; a low, contented "wee" when feeding, and a Fieldfare-like "tchee-tche-tche" when they were chasing each other on the ground.

On September 3rd there were three Dotterels (*Charadrius morinellus*) on the sewage farm. W. K. RICHMOND.

CLUTCH OF SIX EGGS OF COMMON CURLEW.

ON May 12th, 1925, I observed a Common Curlew (*Numenius a. arquata*) rise from an old pasture field near Giggleswick, Yorks. After a short search, a nest containing five warm eggs was found. Two days later the field was again visited and this time the bird was actually seen leaving the nest, which now contained six eggs. These eggs constituted the final clutch and were probably, I think, due to two females, since it is unlikely that the bird would have been sitting on the first occasion were its clutch incomplete, unless, indeed, it was actually laying. W. J. EGGELING

[Clutches of five eggs of the Curlew are not very rare, and at least eleven cases have been definitely recorded. Only one other instance of six eggs being found in a nest has come under my notice, viz., that reported by Mr. C. B. Chambers from the Derbyshire moors in 1923 (cf. *Br. B.*, XVII., p. 170). This also was apparently the produce of two females, but it is probable that most of the sets of five eggs have been laid by single hens.—F. C. R. JOURDAIN.]

WOODCOCK INCUBATING IN SEPTEMBER.

On September 6th, 1929, at Barbon, Westmorland, I found four eggs of a Woodcock (*Scolopax r. rusticola*), and on the 9th and 11th saw the bird sitting upon them, but on the 13th the eggs had been sucked. E. U. Savage.

[Eggs have been previously recorded in August both in Scotland and Ireland on several occasions, and newly-hatched young as late as August 30th (*cf.* A. H. R. Wilson, *Br. B.*, Vol. XVIII., p. 142), but the above note seems to be later than any previous record.—F.C.R.J.]

WOODCOCK CARRYING TWO YOUNG.

About 5.30 in the evening of August 8th, 1929, just as I had passed a wet place in a pasture about a mile from my house near Gargrave, Yorkshire, I looked round and saw a Woodcock (*Scolopax r. rusticola*) on the ground near an ash tree. I walked towards the bird, which had the ash tree behind it, and when I was quite near it got up and flew towards me. It passed almost over my head and so close that I could have reached it with a stick. I saw quite distinctly two small heads of two young birds peeping out, one near each thigh. There was no doubt at all about the position of the young birds being between the body and thighs of the old bird.

The old bird's legs and feet were quite conspicuous and not tucked up under it and I could see them even after the bird had turned away from me. The flight was very slow and uneven as though the bird had not its proper balance or control of direction. It flew about sixty yards, just over a stone wall, and I did not further disturb it. J. H. Preston.

WHITE-WINGED BLACK TERN IN HERTFORDSHIRE.

For a couple of hours at midday on October 7th, 1929, I watched two White-winged Black Terns (*Chlidonias leucopterus*) in bright sunshine and at close quarters at one of the Tring reservoirs. During most of that time the birds were standing on the stony shore, but now and then they hawked about over the reservoir, feeding very much in the manner of a Black Tern by stooping steeply to the water and daintily picking something from the surface. Like Black Terns, they never plunged or submerged, but occasionally they splashed on to the water, a thing I do not remember seeing a Black Tern do. In flight they looked paler dorsally than Black

Terns, and the very slightly forked tail and the absence of dusky patches on the sides of the breast were noticeable. When they were resting on the shore, so close was I to them —not thirty yards away—that with the glasses I could see plainly the deeply incised webs of the toes and the black claws, as well as the details of the plumage. One was an adult, with bright orange-red feet; the bill dull red at the base, shading through dusky to black at the tip and on the culmen; the iris dark brown; the frosty-grey primaries extended beyond the white tail; the forehead was white; the forepart of the crown streaked with blackish-grey, the rest of the crown, nape and ear-coverts blackish; the pale grey of the folded wings was relieved by a small, ill-defined dark patch at the carpus; the whole of the underparts and the under-sides of the wings were pure white. When, as happened two or three times, the bird gaped, the brilliant orange-yellow of the mouth was apparent. The other, and younger, bird was less purely grey, some of the wing-coverts being obscurely tipped with brown; its feet were liver-coloured and there was only a suggestion of red at the base of the blackish bill. When I went to the place again on the morning of the 8th, a Black Tern and three Common Terns were hawking on the water, but the White-winged birds had gone. This species, which apparently is extremely uncommon in this country in autumn has, so far as I know, never been observed in Hertfordshire at any season of the year.

CHAS. OLDHAM.

SPOTTED CRAKE IN STAFFORDSHIRE.

MR. BRYAN, the Assistant Curator of the North Staffordshire Field Club Museum at Hanley, reports to me that Mr. R. Bridgwood on October 8th, 1929, sent him a bird for identification, picked up at Blythe Bridge, near Longton, Staffordshire. It proved to be a Spotted Crake (*Porzana porzana*). Mr. Bridgwood actually saw the bird strike overhead wires in its flight and picked it up dead.

Telegraph and telephone wires are a cause of considerable destruction of bird life in this county. The following species have been found dead under these wires, both on railways and roads—Dotterel, Grey Plover, Landrail, Common Snipe, Jack Snipe, Bittern, Partridge, Blackbird, Kingfisher and many others.

JOHN R. B. MASEFIELD

RAVENS NESTING IN TREES IN DEVONSHIRE.—With reference to Capt. G. Corlett's note on this subject on page 126, we understand from Mr. V. C. Wynne-Edwards that the pre-war nest referred to by Mr. Jourdain was destroyed by the tree being cut down, but after an interval Ravens returned and have nested in another tree in the same locality for the last five years or so. Mr. W. Walmesley White informs us that he knows of three nests of Ravens in trees in Devonshire (*cf.*, *B.B.*, Vol. XX., p. 278) and has heard of several others. Mr. Owen Wynne has also recorded two (Vol. XXII., p. 158, and XXI., p. 13). Recently, Mr. Gladstone has recorded one in Dumfriesshire (see Vol. XXII., p. 67) and Mr. H. A. Gilbert others in South Wales and Herefordshire (Vol. XXI., p. 13). A pair bred regularly in a pine at Kentchurch (Hereford) up to about 1880 (*Vic. Hist. of Hereford, II.*, p. 135).

BLACK REDSTART IN SUFFOLK.—Mr. J. B. Watson informs us that he saw a Black Redstart (*Phœnicurus o. gibraltariensis*) on October 19th, 1929, on Coverhithe Cliff, Suffolk.

SHAG WITH ASYMMETRICAL TAIL.—Mr. V. C. Wynne-Edwards informs us that on September 25th, 1929, he received a Shag (*Phalacrocorax a. aristotelis*) with the usual six rectrices on the right, but with seven on the left side. The skin was dissected away, but no feather rudiment was to be seen.

GREY PHALAROPE IN SUFFOLK.—Mr. J. B. Watson informs us that on October 17th, 1929, he and another observer saw a Grey Phalarope (*Phalaropus fulicarius*) on a mere close to the coast in Suffolk. It was picking flies from the surface of the mere with great rapidity and with characteristic tameness permitted approach to within a few yards. It was in winter plumage.

BLACK-TAILED GODWIT IN ORKNEY.—At the June meeting of the British Ornithologists' Club, Dr. Carmichael Low exhibited a specimen of *Limosa limosa* which had been picked up dead at Sandwick, Orkney, on June 4th, 1929. Dr. Low referred to the rare occurrence of the bird in Orkney, mentioning a single previous record (September 27th, 1894, Westray). The Rev. F. C. R. Jourdain added that Mr. E. G. B. Meade-Waldo informed him that he and the late W. R. O. Grant saw two near Loch Sanday in June, 1912, and one in 1913 (*Bull. B.O.C.*, XLIX., 104–5). Besides these, one was seen on June 7th, 1910, in Orkney by Messrs. Hale and Aldworth (*Brit. B.*, IV., 221).

LETTERS

THE BIRDS OF MIDDLESEX.

To the Editors of BRITISH BIRDS.

SIRS,—When I was preparing my recently published *A History of the Birds of Essex* you kindly allowed me to make the fact known in your pages, which assisted me to get some very useful information. I am now collecting information for a proposed similar work on the birds of Middlesex and am anxious to make this known to your readers.

I shall be grateful to receive records which may have a bearing on the birds of this county. Communications should be addressed to me at The Albion Brewery, Whitechapel Road, London, E.1.

WILLIAM E. GLEGG.

TWO RED-BACKED SHRIKES LAYING IN SAME NEST.

To the Editors of BRITISH BIRDS.

SIRS,—Mr. A. L. W. Mayo writes (*antea*, p. 128) of finding two clutches of Red-backed Shrike (*Lanius collurio*) in one nest and apparently without the presence of a male. This has interested me because, in studying the nesting-habits of this species, I have found that the male does much the greater part of nest building, in fact, I have not actually seen the female carrying nesting material, although she visits the nest at intervals. It must, I feel, be of very rare occurrence to find a nest and eggs of an unmated female Red-backed Shrike, and even rarer to find two such birds unmated in the same area. Could it be that disaster overtook one or both male birds, if they ever existed. Can Mr. Mayo say definitely that all the ten eggs were infertile, also the period covering his observations. If both these females were unmated, it is conclusive that a female of this species is capable, not only of doing a share of nest-building but of making the whole nest.

D. W. MUSSELWHITE.

EXTRAORDINARY DISPLAY BY A PAIR OF HEDGE-SPARROWS.

To the Editors of BRITISH BIRDS.

SIRS,—Early in May, 1929, I saw two Hedge-Sparrows on a gravel path in front of one of my windows behaving in a way that was strange to me. One bird, which I judged to be the female, appeared to be making advances to the other, fluttering her wings after the manner of a fledgling asking to be fed, and doing this while she had her back turned towards the other bird and her tail slightly but perceptibly raised.

I expected this to be followed by coupling: instead of which the male's response was to probe delicately with his bill among the feathers round her vent. This action was continuous over long spells, separated by intervals during which both birds pecked about the path in the Hedge-Sparrow manner, and resumed each time by the female returning to the male and repeating her former movements and pose, he responding as before. Finally she moved away from him, rather as though he had given her too hard a dig which she resented, but she did not leave him.

At no time was there any attempt at coupling. The performance almost suggested that the one bird was relieving the other of some

irritation, and for the moment I wondered whether she could be a sitting bird plagued by vermin and had adopted this means of gaining ease. The recent publication in *British Birds* of two parallel cases (*antea*, pp. 19 and 103) adds interest to my observation and prompts me to send this account. WILLIAM H. GARDAM.

STAINES.

DO PUFFINS GET THEIR RINGS OFF?

To the Editors of BRITISH BIRDS.

SIRS,—Until the issue of your October number, when the recovery of two ringed Puffins (*Fratercula a. grabæ*) is recorded, recoveries were so conspicuous by their absence, viz., .01 per cent., that it pointed to the birds getting the rings off with their formidable beaks. In 1927, the light-keepers on a certain island in Orkney, where Puffins breed in countless numbers, marked three of them with differently coloured corkscrew celluloid poultry rings, and in 1928 two out of the three returned to the identical burrow in which each had bred in 1927. In 1928, with the kind co-operation of the light-keepers, I marked 419 Puffins on this island, of which 399 were adults, using rings far too large for them, viz., No. 4, so as to allow plenty of overlap, each ring being securely fastened with pliers.

Although the light-keepers went over the same ground again soon after, they failed to find any birds bearing the rings so recently placed upon their legs. This fact almost proves that they were very soon afterwards undone by the beak, this being strengthened by the fact that not a single ringed bird was found on the island this year of all those marked in 1928.

This year the Puffins arrived fully a week earlier than they had ever done before, and I only managed to ring 80 adults; with a clip ring which could not be undone. On going round these burrows later, the keepers found that these clip rings were still upon their legs.

H. W. ROBINSON.

REVIEW.

Census of Buzzards [in Devon]. By H. G. Hurrell and V. C. Wynne-Edwards. Reprinted from the *Western Morning News and Mercury*, August 28th, 1929.

THE recently-formed Devon Bird Watching and Preservation Society has made an excellent start by organizing as its first corporate undertaking a census of Buzzards (*Buteo b. buteo*) in the county. On a total area of 305.79 square miles from which detailed observations were received, 46 pairs are reported, giving an average area of 6.647 square miles per pair. Assuming that this gives a fair index to the average density of the inland Buzzard population throughout the county, the total for the whole of Devon, exclusive of the coast, would be 393 pairs.

The number of pairs on the cliffs of the north coast is estimated at 38, and on the south 25. The interesting point is brought out that the cliffs of new red sandstone are avoided by Buzzards, probably on account of the crumbling character of the rock. On an area of 160 square miles, ten per cent. of unattached birds were reported. The detailed evidence for this is not quoted, but allowing a similar percentage for the whole area and utilizing the figures above given, it is estimated that the total population for Devon is in the region of 1,000 individuals, or, better, something between a minimum of 900 and a maximum of 1,200. The figures can only be regarded as tentative, the assumptions involved being rather large. but at least a very useful basis has been established for a more extended enquiry which we understand is projected for a future year and which we wish every success. Co-operative work of this kind, properly directed, has great possibilities. B. W. TUCKER.

LE GERFAUT

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ON THE BREEDING-HABITS OF THE MANX SHEARWATER, WITH SPECIAL REFERENCE TO ITS INCUBATION- AND FLEDGING-PERIODS.

BY

R. M. LOCKLEY.

It was with the main object of discovering the incubation- and fledging-periods that I marked a number of nests of the Manx Shearwater (*Puffinus p. puffinus*) on the island where I live. Skokholm lies off the far south-west of Pembrokeshire and comprises about 250 acres of rough grazing, heather, bracken and thrift. It is entirely rock-bound and the height of the land varies between 50 and 150 feet above sea-level. It was formerly under cultivation and farmed, but has been idle and overrun by rabbits since the end of the last century. Some of the points noted below were observed during 1928, my study of the bird covering two years. The nests were marked in the year 1929.

It has been difficult to estimate the adult population of Shearwaters on the island, but, by a calculation of nests per acre, I have arrived at a conservative estimate of between nine and ten thousand birds or five thousand pairs. The population is probably much greater in reality, but the estimated figure is to some extent substantiated by the fact that over the whole season I have found at least six birds per acre, or fifteen hundred in all, dead or slain, this being thirty per cent. of a possible five thousand young birds hatched. According to local history, the Shearwaters are steadily on the increase on the island. When the land was under cultivation only a few pairs nested in the burrows on the cliffs, and now the birds have increased with the rabbits until every acre has a burrow and a nest.

In 1928 the first Shearwater was heard and seen on February 9th and by the 26th they were numerous. In 1929 they were even earlier. I heard the first bird on February 2nd. On February 15th severe frost and snow set in and the Shearwaters were not heard again until the 26th, after which date they gradually began to return. By the middle of March of both years the Shearwaters were to be found all over the island, occupying their nesting-holes in full force.

Throughout the day they lie quiescent in the farthest recesses of the burrows. I have found them sitting singly, but in March and April more often in pairs. The experiments given below have helped me to discover that the birds visit

their nesting-holes each night with great regularity, but the circumstances that govern their presence or absence by day have not been revealed. The facts are that sometimes one bird will be present, sometimes the pair, and sometimes neither during the day. The attendances are very irregular during the day and very regular at night in that part of the season before the egg is laid.

Whether the burrow is a simple blind shaft or the labyrinth of a warren the birds lie invariably, I have found, in the recessed end, and I believe they are capable of widening the end of a burrow to suit their requirements, for they may often be found with their bills smeared with partly-dry earth in the spring. If a nesting-hole is deliberately blocked up with earth and stones the Shearwater will use its bill as a pick and endeavour, usually with success, to force a passage through. A small recess, wide enough to permit it to turn round comfortably, contents the bird as a nesting-place. With its back to the wall of the recess, it is able to confront all comers, whether rabbit, Puffin or human hand, with its sharp, hooked bill, which can inflict a nasty scratch and draw blood from tender fingers.

The depth of the burrow varies according to the depth of the soil. Where the rabbit has penetrated, no matter how far, where the soil is soft and deep, there the Shearwater goes. When I was looking for nests I traced the birds by ear and nose. By imitating the call-note, it is often possible to get a sitting bird to respond from its burrow. By putting one's nose close to a burrow, the unmistakable and not quite pleasant smell of a Shearwater can often be detected. Many of the nests were too deep to get at. With spade, crowbar and guiding stick I followed the tortuous windings of the rabbit-burrows, making borings from three to six feet deep, but in vain. The cackle of the birds from far below would sound derisively to my ear. On the other hand, where the soil is thin over the bare bedrock, the burrows are shallow and more easily traced to the end recess. Most of these shallower holes are occupied by the Puffin (*Fratercula arctica grabæ*), which does not, as far as I have yet noticed, descend so deep as the Shearwater into the more labyrinthine burrows. The shortest burrow I have a record of is an arm's length, curved, and not quite three feet long.

The marked nests were all in shallow burrows. The method of watching was to trace the burrow to the end, and to cut very carefully a large sod immediately over the nest. This

sod then served as a very convenient observation door, which could be lifted up for the purpose of inspecting the nest at any time.

Special Observations.

Nest A.—Burrow 4 feet long, in peaty, shallow soil on a rocky knoll eleven yards from my house. Materials, a little dried grass and six or seven chicken feathers. This nest was watched from April 26th onward. One bird or a pair was present almost regularly by day. On May 6th there were no birds present. On May 7th there was one bird sitting on a fresh white egg. This bird was immediately marked and later ringed with a B.B. ring, the last two figures of which were 81. On the 8th and 9th, 81 still sat alone during the day. It was visited at night by another bird, presumably its mate, and there was on each occasion a great deal of cackling in the burrow. I was not able to discover whether the sitting bird was, or was not, fed by its mate. I can only suppose so, in view of the length of time spent by one bird incubating the egg.

At about 10.15 p.m. G.M.T. on May 8th and about 10.30 p.m. G.M.T. on May 9th, when the whole island was resounding with the screams of the Shearwaters, the mate of 81 arrived suddenly out of the sky, screaming loudly, and falling with an audible thump upon the turf a few inches from the mouth of the burrow. At intervals since dusk, and rarely during the day, 81 had been cackling from the nest and from 9 p.m. onwards the cackling had become more and more frequent. About me, as I sat on an outcrop of rock, Shearwaters were calling from underground. 81 answered its mate as soon as the latter touched the ground. With a barely perceptible pause, the incoming bird shuffled into the burrow. It is impossible to describe the unearthly cackling and cooing which now ensued. I waited an hour, during which the birds gradually became less noisy, with increasing intervals of several minutes' silence. With my ear to the ground immediately above the nesting-recess I was able to hear frequent shuffling and movement going on, with occasional faint squeaks, and often the deafening uproar of the pair cackling in duet. I confess my patience wore out after midnight and I left the pair to their connubial bliss. From May 15th to 19th the mate, which I ringed as 82, sat alone; from the 20th to the 25th, 81 sat; from the 26th to the 28th, 82 sat; from the 29th to the 31st, 81 sat; from June 1st to the 4th, 82 sat. The birds were now becoming shy. I visited

them once a day only, at sunset. My main object was to find out the incubation-period, and I was very anxious to disturb the sitting birds as little as possible lest they should desert. Upon my lifting the sod from above the hole, the sitting bird was now more timid and would move off the egg and shuffle out of sight along the burrow. After the 4th I did not try to capture the bird, but merely contented myself with one quick look daily at the egg. On June 18th I found *both* birds on the nest.

On June 26th the egg was pipped in one place. On the 27th the young bird had hatched, but was still wet, thus having taken 52 days to hatch. On the 28th the nestling was dry and downy. The youngster was daily brooded up to July 3rd, when it was left alone during the day until the 7th, when I found one parent sitting beside the growing, downy youngster. The parents did not again stay in the burrow by day. The first down is pushed out by the second down as the nestling grows. It is difficult to gauge the actual time of sprouting of the second down, as the first down remains attached to the second, but this occurred about the 16th day. On August 1st, the 35th day, the double down of the bird was nearly two inches long, and the nestling resembled an enormous grey powder-puff. The colour of the down is accurately described in the *Practical Handbook*. Signs of feathers were now evident; on the 42nd day the quills and tail-feathers appeared from their sheaths. On the 62nd day the young bird was completely feathered, but some down still showed on the nape, lower belly and thighs.

From this day, until it disappeared, the nearly fledged youngster was not fed or in any way attended by its parents. I already suspected that the bird had been deserted, but to make sure I placed a small sod at the mouth of the hole in such a position that it would be pushed in by a bird seeking ingress and out by a bird seeking egress. A Shearwater, I knew, is capable of pushing almost any object aside if it wishes to enter a burrow. This was on August 28th. The sod was left untouched until September 3rd, this proving to me that the nestling had fasted for six days and stayed a voluntary prisoner in its hole. On September 3rd the sod had been pushed out and there was quite a lot of the nestling's down adhering to it, giving plain evidence of the young bird's activity. On September 4th I spent the night out of doors watching the bird. At about 10.15 p.m. G.M.T. it suddenly shuffled out of its burrow and it remained the whole night

almost in the same position on a slight rise at the mouth of the burrow. Once or twice it shook its wings as if trying them. About 2 a.m. it silently returned to its burrow. This procedure it adopted up to September 8th. I went out each night at about 11 p.m. to note this specially. On the 6th it fluttered away from me six yards into some nettles, but the next morning I found it safe in its burrow. On September 8th it had gone altogether, after a period of seventy-three days from hatching to final departure.

Nest B.—Burrow 6 feet long in stony loam in open meadow. Materials: a little dried grass and germander (*Teucrium scorodonia*). This nest was found on May 7th, when a pair were sitting together in the recess. On May 8th, no birds; on the 9th, one only which I ringed 83; empty on 10th, 12th, 13th, 15th, 16th; 83 only on 11th and 14th; on the 17th one new bird only, which I ringed 89; on the 18th another new bird, which I ringed 90, sitting on a new-laid egg! On the 19th, 90 was sitting on the egg, but got off and was very shy at my intrusion; on the 20th, a fourth bird, which I ringed 100, was sitting alone on the egg! Clearly two pairs using one nesting-recess. On the 21st, 90 and 83 were sitting together on the egg. They both shuffled away and I had to be quick to catch them. Anxious not to disturb them unduly, I did not look again until the 24th, when I found 83 sitting *beside* the egg, which was cold and smeared with dirt. On the 26th the nest had the egg only. On the 29th the egg had disappeared and there was earth scratched over the nest. I suspected a rabbit. On the 30th, 83 was sitting with nothing under it. On the 31st I was astonished to find 90 sitting on the egg, which was covered with a paste of damp earth and excrement! Had the birds unearthed the egg from somewhere? It was the same egg, as on wiping it I found my pencil marks (I marked all the eggs I found in these experiments). 90 continued to sit alone on June 1st, 2nd, and 3rd. I did not look again until June 14th, when I lifted the sod to find 83 and 90 together, but no egg. I then gave the case up as hopeless. The finale was that on July 2nd I found one bird sitting on the filthy egg, again mysteriously recovered, and on July 6th 90 was sitting on the egg, which was cracked and rotten. I think the birds made a gallant attempt to incubate in face of interference by rabbits burrowing and throwing earth into the recess.

Nest C.—Burrow 4 yards from A in peaty soil, 4 feet long. Materials: dried grass and a few roots, the latter probably

torn from the sides of the burrow. Observed as from May 15th, when one bird only was found and ringed 85. No birds 18th, 19th and 20th. On the 16th and 17th one new bird, which I ringed 88; from the 21st to the 24th one bird only, which was so quick at escaping that I did not trouble to catch it; on the 25th, 85 was with a new bird, which I ringed 94, obviously a pair; on the 26th there was another pair on the nest, 88 and a new bird, which I ringed 99, sitting on a new-laid egg. Two pairs again using nest as in nest B, but after this I saw no more of 85 and 94. 88 and 99 settled down to incubate in turns. 88 sat on May 28th and 29th, and on June 1st, 4th and 5th, and in between these days 99 sat. After the 5th I contented myself with a daily glance to see if the egg had hatched. On June 14th the pair were brooding together. On July 17th the chick could be heard in the egg, which, however, was not pipped; 88 was incubating alone. On the next day the egg was pipped and on the 19th the chick had emerged, but was still wet, having taken 54 days to hatch. It was dry and downy the next day.

The parents brooded the nestling by day for eight days, with the exception of July 25th, the sixth day. I now visited this youngster every other day, and found its progress exactly similar to the bird in nest A, its senior by 22 days. Its feathers were well sprouted on September 6th, the 49th day. I watched the nest until midnight on September 14th, but no adult appeared. I then put a clod in the mouth of the hole. The clod was not moved on the 15th, but on the 16th it was pushed *inwards*. There was no trace of down to show activity by the nestling. I suggest this was a last visit by the parent or parents to feed the young. From the 17th to the 22nd the clod was not moved, *i.e.*, the young bird stayed in the burrow for five days without attempting to leave, and suffered a five-days' fast. On the 23rd the clod was pushed out and the down of the young bird adhering plentifully to it, proved that the nestling had at last come forth. This happened every night until the 29th, when the hole was empty when I examined it. The fledging-period in this case was 72 days. I weighed this nestling on September 13th, and again on September 22nd. On the former date it weighed 13.25 oz., on the latter 12.50 oz.

Nest D.—Burrow 3½ feet long in stony loam near B. Materials: several dead bracken stalks about 3 ins. long and a few blades of dried grass. Found on May 15th, when one bird was incubating a very slightly incubated egg. I

ringed the bird 84 and removed the egg, under the impression that the bird would lay again and thus provide me with a proper record of the incubation-period. Two birds returned each night up to the 23rd, but did not stay by day. On the 24th, 84 spent the day in the nest and on the 25th the pair were present. I ringed the other bird as 92. After that they were only present by day on four occasions, June 5th, 11th, 20th and 22nd. They deserted entirely after this and my expectations of a second egg were not realized.

Nest E.—Burrow 8 feet long in loam of meadow. Materials: a lining of dried grass. Found on April 27th, when one bird was sitting on a slightly incubated egg, which I removed. The birds did not lay again, but continued at intervals to spend days in the nest. Thus, 86 was present on May 15th, June 20th and July 6th. Its mate, 91, on May 20th, June 28th and July 1st, and the pair on May 25th and June 15th. On four days, when the pair were absent, I found a rabbit in the nesting-recess, and in mid-July there was a new-born litter there.

Nest F.—Burrow 2½ feet long in stony cliff-slope. Materials: a quantity of dry heather-stalks and stems, obviously taken from a clump at the entrance to the nesting-hole. This nest had been marked since February. In 1928 I had daily watched a young bird grow up in this nest. This year a pair regularly visited it at night, but not once stayed over the day until May 16th, when I found one bird, which I ringed 87, sitting on a new-laid egg. 87 sat on the 17th and 18th. From the 19th to the 23rd the egg was left alone by day. Fresh excreta at the mouth of the burrow proved that by night at least the nest was visited. 87 sat on May 24th, 26th and 29th and on June 5th and 14th. By day, on all other days, the egg was left cold and deserted except on June 2nd, when my fear that 87 had lost its mate was removed by finding an unringed bird on the egg. I did not see this bird again, and after June 14th the egg was completely deserted. I am loth to conclude that the birds deserted because of my daily visit, but this is the only reasonable explanation. It is possible that the sunlight, which penetrated a little way into the short shaft, also disturbed the birds: and yet in 1928 a young bird was successfully reared here.

Nest G.—Burrow 5 feet long on the edge of a clump of bracken near F. Materials: about 15 dead bracken stalks, 2 to 4 in. long. Found at night on May 16th, when two birds were cackling in the burrow. They did not stay by day until

June 5th, when one bird was found sitting alone. I waited patiently for the appearance of an egg, but no egg was laid at all by this pair. One bird was present on June 5th, 6th, 10th, 14th, 25th and 30th, and the pair were together on June 23rd. I saw no more of them after June 30th. Were these birds immature, or the hen barren?

Other Observations and Conclusions.

My observations, extending over two years, now enable me to give a fairly comprehensive survey of the habits of the Manx Shearwater during the breeding-season. Of its winter movements on the sea I can give no data. My notes have records of birds in coastal waters in every month except December and January.

From early May to early September there is a regular movement each day, beginning shortly after noon in misty weather, but much later and sometimes not until dusk in very clear weather. Flocks and strings of adults pass steadily north westwards from the Bristol Channel past Linney and St. Anne's Heads through the Broad Sound between the two islands where they nest, and disappear in the open sea between Skomer and Grassholm. I have frequently sailed, particularly in misty weather, through the main body of the movement, and had the pleasure of seeing thousands of Shearwaters flying low over the water around me. Sometimes they have settled on the water to feed, diving for short periods and using their wings to swim under water as the Puffin does; more often they made short flights low over the waves, snatching invisible (to me) whitebait or "brit," with feet occasionally dangling in the water and slowly flapping wings, and then again settled on the water. The flock would move on again like a magic carpet, to settle down farther on and feed again. Always the direction has been north-westwards, the rate of progress leisurely yet direct. Early in June the largest flocks are seen. On one occasion (May 26th, 1928) I sailed through an enormous flock stretching between points more than four miles apart and two miles broad, the sea being quite darkened by the multitude of birds. It was then 9 p.m. G.M.T., overcast and inclined to rain, yet not very misty, a heavy ground-sea running after a southerly gale. That night many hundreds of Shearwaters visited the mainland coast about Marloes and were heard screaming as though at their breeding-place. They are, in fact, not infrequently heard at night in summer along the mainland coast of Pembrokeshire from Ramsey Island southwards to

Amroth. Any appreciable movement or return southward at any time of day or season I have not noted.

I suggest this flight northwestwards expends itself in the open sea beyond Skomer, and the birds, after waiting until dark, return to the islands and their parental duties.

The time the adults return to the burrows from the sea depends on the time of sunset and the state of the moon. They fly inland at about two hours after sunset as a rule, and this is a fairly regular time throughout the season. Thus, in March, they are screaming over my house from 8 p.m. onwards. On moonless or cloudy nights they arrive early or punctually, but on clear moonlit evenings they may be as much as an hour late. In June, then, the time of arrival is usually just about or after 10 p.m. G.M.T. Throughout the season the time of departure, or rather cessation of activity on land, is punctually at about 2.30 a.m. G.M.T. By 3 a.m. the last Shearwater has hurried to its burrow or to the sea.

Moonlight also affects the volume of noise made by the island colony. When the moon is shining the uproar is reduced to the calling, within earshot, of perhaps a dozen birds at one time. On cloudy or moonless nights the uproar is so continuous that only the individual notes of those birds passing close to the observer are distinguishable from the general bedlam. The characteristic note, used both as a call-note and an alarm, is variously rendered by observers, but I can find nothing that renders it as well as

cuck-cuck-oo, or cuck-cuck-cuck-oo,

usually repeated three, sometimes four, and rarely five times in quick succession. The incoming birds begin calling before they reach land. I have heard them calling at a distance of at least one hundred yards from the cliff, over the sea. Each bird has a distinctive variation in tone or pitch of note, some high, some low, some very harsh, and some fairly soft. At a distance the note distinctly resembles the early crowing of an immature chicken, but is, of course, higher and quicker.

The mode of flight over the burrows is the same as over the sea, though the Shearwater does not fly close to the ground but usually at least ten feet above it : a series of rapid glides, now with the right wing-tip pointed to earth, and now with the left wing-tip pointed down, as the bird rises at the end of one glide and turns over and downwards on another glide, now showing its white underparts and now its black upperparts. During a heather fire at night early in spring on the island, I was able to observe this typical flight. The birds

flew close to the flames like so many gleaming rosy stars, as their white breasts flashed in the red light. In the red beams of the island lighthouse, too, the same flight and colour-effect may be observed. The rapidity of their gliding produces a loud swish of the wings, audible at some few yards, and one wonders at times with what force they would collide with each other or with the observer. They have never actually collided with me, but I have frequently been struck by a glancing wing. They never strike the lantern-glass of the lighthouse, and I presume the red rays do not dazzle them.

The adults fly almost directly to their holes, dropping with accuracy at their own "front doors." At first I suspected the sitting bird of coming forth to meet the incoming bird, as I often found a pair sitting together outside the entrance to the burrow, but I discovered later that in these cases both birds had been away during the day, and had as yet no egg in the nest. One may arrive before its mate, and in this case, obtaining no answer to its calls (perhaps expecting none), it awaits the arrival of its mate. The pair then spend some time together at the mouth of the burrow, possibly in mating. They wrestle together, beak caressing and grasping beak, and they peck at each other's "faces," and utter the most unearthly variations of their call-note it is possible to imagine. I have not seen them attempt coition, but suggest that this is the most favourable moment on land. The Shearwater, however, is so clumsy on land that it may perform this business exclusively on the water. When approached too closely the birds will shuffle away into their burrow.

Home-hunting is indulged in (by those birds which are, presumably, without a burrow) during April and May. One evening I watched a pair of birds shuffling along beneath a hedge-wall, and poking into every cranny along the hedge-foot. They ended in an inadequate recess under a stone, but seemed, by their vocal efforts, thoroughly to approve of it——at least for the evening. Often a pair will spend the day thus, under a large stone, a heap of coal or timber, or a crack in an old wall.

The nesting-material is collected at least a week before the egg is laid. In all the marked nests, as well as in every other nest I have examined, the materials were taken from near at hand, in fact, about the mouth of the burrow. The Shearwater is no traveller on land and therefore picks up the nearest material to hand. This is generally grass or dead bracken. In nest A, the feathers were obtained from a dry,

dusty area in front of the hole, where my chickens indulge in a dust-bath. In nest B, a clump of germander grew beside the entrance-hole. The Shearwater will appropriate almost any hole that goes far enough underground, and cares nothing for any particular aspect, north, south, east, or west.

The two records (Nests B and C) of two pairs frequenting the same burrow indicate that the Shearwater has its territorial problems, and the solution in these cases seemed to lie in one pair laying the egg first. In nest B, however, after 90 had sat on the new laid egg on May 18th, a strange bird, 100, was sitting on the egg on the 20th. 100 and its partner, 89, did not again interfere, but left the burrow clear for 90 and its partner, 83. Nests B and E provide instances of rabbits using the same burrow.

In the shallower burrows Puffins also contest sites with the Shearwater. More than once I have heard conflicts going on inside holes and on two occasions I have found the two species in combat at the entrance to the hole, in broad daylight. Puffins are notorious scrappers, but in these two battles the Shearwater won. The birds came rolling and fighting, all wings and legs, out of the hole, and once in the open the Puffin on each occasion flew away, while the Shearwater, after a pause to recover, shuffled back into the burrow. Early in May, 1928, a Shearwater's egg, which I found in a very shallow burrow near my house, was incubated for three days by a Puffin. On the fourth day the egg was broken and its contents spilt, and the Puffin absent. I removed the egg and thereafter for the rest of the month a Shearwater frequented the hole at intervals, the Puffin not appearing again.

Nests D and E, in which the egg was removed soon after being laid, provide evidence that the Shearwater does not lay twice in a season, but, instead, frequents the nest at intervals, until perhaps a month after midsummer.

Once the egg is laid the birds carry on their conversations and caresses underground ; the incoming bird shuffles at once to the nest. My experiments show that one bird will often sit for several days, once as long as five at a stretch, and often three or four. I am certain that in these cases the sitting bird does not leave the burrow and stretch its wings outside or over the sea, but that it remains, under the ardour of incubation, generally for two or three days at the nest. Its only exercise is obtained by turning the egg and by meeting its mate at night. I found it turned the egg and altered its own body-position at least once during the day. Whether it is

fed at night by its mate or whether, at the end of several days' fast, it hurries to the sea to feed, leaving its mate in charge, I was unable to prove. I made no experiments to find out the nature of the food of the Shearwater, or the many points that need observing in this direction. I can only point to the little evidence already given, and suggest that during the time the birds meet inside the burrow, feeding of the sitting bird by the incoming bird is accomplished. It follows that, on the rare occasions when both birds have incubated together by day, one of the pair has to spend the ensuing period of forty-eight hours (two days and a night) without food until its mate's return; unless, as appears to me extremely unlikely, one bird comes back in the same night as it leaves, and feeds the other.

The Shearwater, on being handled, will sometimes throw up an oily mass of predigested food, the original ingredients of which are not recognizable. On this matter I presume the young one, and possibly the sitting bird, is fed. The very nature and state of this food surely indicates that it cannot be obtained and prepared in the few hours of night.

Nests A and C provided complete data of the incubation- and fledging-periods. In nest A the egg hatched in 52 days, in nest C, 54 days. Although it was disappointing to have only two records, the results are fairly close, and the incubation-period may be put down as 52 to 54 days. I believe these are the first exact records ever obtained of the period, Hantzsch's estimate of about one month being most erroneous.

The young one is brooded by day for about one week only, except for a casual day (Nest A) in the first fortnight, when one parent was present. Both parents visit the nestling at night and it is then fed, *i.e.*, once in twenty-four hours. The nestling grows rather slowly. The first down is more or less continuous with the second down, and at six weeks the double down is about two inches long, and the youngster presents the appearance of a grey Angora rabbit. At this age the feather-sheaths are showing beneath the down. The feathers grow quickly from the sixth week until the tenth, when the bird is fully feathered.

At about the 60th day (in Nest A the 62nd and in Nest C the 59th) the adults entirely desert the nestling. The young bird remains in its burrow, fasting, and no doubt drawing upon its reserve of fat. It finishes growing its juvenile plumage, and loses most of its down, which falls in a circle about the nest, together with the dried scale of the growing

feathers, the whole forming quite a rampart about the bird! There is very little excreta in the burrow at this time, at least visible, and the nestling is always dry, clean, and has no offensive smell when handled.

After waiting a few days in the nest for the parental visit, the nestling at last makes its way to the mouth of the burrow at the usual time in the evening. It sits at the mouth of the burrow for most of the night, occasionally moving its wings, but otherwise still and silent. These young, nearly fledged birds, sitting at the mouths of the burrows, are a feature of the island bird-life at night in early September. Mr. H. F. Witherby examined a number of them with me on September 2nd, 1929, and I am indebted to him for some valuable suggestions in connection with the observation of these birds. On being handled, these fully-grown nestlings utter, on occasion, the usual cackle of the species, but the cry is smothered, as in one who breathes asthmatically, and it lacks the strength and finish of the adult voice. The downy, unfeathered chick utters a plaintive "peep-peep-peep," querulous and low, when with its parents, but is usually silent when handled. At all ages from a week onwards the nestling pecks fiercely at the intruder's hand.

It takes the nestling five or six days to pluck up courage to leave its burrow altogether. During this period it comes out each evening to the mouth of the burrow, retiring again at about 2.30 a.m. It would be interesting to know whether the bird, if carried some distance from the burrow at this stage, could find its way back. I suggest that this is improbable. In the case of A, the bird only fluttered a few yards from the nest and was safely back before daylight, but should the bird once be disturbed and driven, perhaps thirty yards away, then I believe it would not find its way home again. Where burrows honeycomb the ground, the birds, when disturbed from their midnight vigils, will often scramble into the first hole they happen upon, after fluttering along before the observer.

In the case of A, the nestling was left without food for at least eleven days; in the case of C, for at least thirteen days continuously and fifteen days altogether. In Nest A the bird had finally left by the 73rd day, in nest C by the 72nd day. These periods are very close and we may say the fledging-period is 72–73 days. To reckon the fledging-period from time of hatching to the time when the adults stop feeding the young bird seems to me to be unsatisfactory, as at the latter date the nestling is still very much a nestling, and its feathers almost concealed by the unshed double-down.

Left to itself, the young Shearwater, fully feathered and generally with varying amounts of down still clinging to its head and underparts, at last, perhaps driven by hunger as well as instinct, makes a bid for liberty. If the wind is strong, almost to gale force, the chances are that it will, in exposed places, be able to fly straight from its nesting-hole, and be held by the wind long enough to enable it to obtain a proper impetus to fly out to the sea. I have thrown young Shearwaters, some still very fat and with much down still showing, up into a strong wind and watched them fly steadily upwards and onwards to the sea. These birds had never flown a yard before, but on attaining a proper impetus, they flew with a wonderful strength and grace.

The story is very different, however, on calmer nights. The Shearwater starts off from its hole with a sudden and bold flutter of its wings, but of course barely rises in the air at all. If the ground is level and clear of vegetation it attains what may be described as a flying walk, *i.e.*, it patters along the ground with its feet, sustaining itself with quickly-beating wings. The slightest unevenness of the ground upsets this progress, which in any case exhausts the bird after a few yards. On very uneven ground the young bird advances on all fours, pushing with its feet and partly outstretched wings. To surmount a high object it uses its beak just as some other young birds do, as a hook to pull up with.

The young bird seems to know the shortest way to the sea. After several days of calm, on September 14th, 1929, a night with little wind, I found young birds making their way to the sea over or through every natural obstacle. They scrambled through the densest bracken and over heather, clumps of thrift, bog-grass and rocks. Their progress was spasmodic and it would seem that they were compelled to rest in order to recover from the exertion. One bird presented a pitiful sight. It was emaciated, no doubt because of an extra long fast, and painfully light to handle, yet the urge to reach the sea was so strong that it literally staggered along, falling after each effort into the most extraordinary and helpless attitudes upon its back. It progressed very slowly and at 3 a.m. was lying on its back in some bracken, having failed to reach the sea. Later it died, and on the scales weighed 10.25 ozs.

The birds which reached the cliffs blundered straight over them, and, catching the slight updraft of air, flapped and glided downwards into the darkness over the sea. About one bird in ten was completely free of down.

The young birds hatched in burrows in the centre of the

island have a long way to travel on calm nights and many do not reach the cliffs in one night. Dawn finds them in every place and position, and those that are near the cover of holes, bracken and heather are fortunate. Gulls, Buzzards and Crows are early abroad seeking the birds which have not found cover for the day. The bright light of day seems to reduce the Shearwater to a state of helpless torpor. When handled, it will scarcely peck in defence. If the sunlight is strong, the bird sits with nictitating membrane drawn over the eye. It is thus an easy victim for predatory birds. The Black-backed Gulls eviscerate their victim first, and, if hungry, will gradually worry all the flesh and bones, except the beak, out of the skin, and leave the empty skin inside out. There are hundreds of these empty skins on the island in the autumn. The Buzzard (*Buteo b. buteo*) tears the Shearwater to pieces, leaving the wings and breastbone only. The Carrion-Crow (*Corvus c. corone*) picks out the brain and the entrails, beginning as a rule on the brain, and I have watched all these birds at work. The Raven (*Corvus c. corax*) I have never seen at a carcase, but the pair on the island are perhaps too wily to be caught feeding. The worst offender is the Great Black-backed Gull (*Larus marinus*), followed closely by the Lesser (*Larus fuscus affinis*) ; the Herring-Gull (*Larus a. argentatus*) is the mildest offender, and its depredations seem to be confined to the activities of a few " rogue " Gulls.

Here and there, too, may be found by day, under bracken, heather, and under the stone hedge-walls, young birds that have escaped these attentions and yet are dead, though outwardly unharmed. These birds are invariably light and thin, and I conclude must have died of starvation, through being unable to reach the sea. Three of these birds I weighed were freshly dead and barely turned the scale at 30 ozs., or 10 ozs. each. The average healthy youngster at fledging-time weighs between 13 and 15 ozs. I have found.

Calm weather, therefore, is unfavourable to the thriving of a Shearwater colony. Even the adults are often unable to rise from bracken or heather or sheltered places on a windless night, and have to spend the ensuing day in the open, easy prey for the eager Gulls. I find them frequently in the corners of my garden, of the walled-in folds of the lighthouse gardens and surrounds. Not many years ago Shearwaters were used here to bait lobster-pots and the birds were caught by the hundred in rabbit string " longnets," stretched 50 yards across a warren or a cliff-slope on the island.

In the burrows where both rabbit and Shearwater have traffic the nestling is often infested with rabbit fleas, particularly about the eyes, but they are quite free from them in other burrows.

The manner in which the adult Shearwater leaves its burrow is much the same as that of the nestling making its first flight, except that the adult flight is strong, and a slight breeze is enough to give it an impetus to rise clear of the ground within the first few yards. The adult will sometimes hurry out of the burrow and endeavour to fly straight away into the wind, but usually I have noticed it sit for a few moments, or even longer, outside the hole with its head to the breeze before launching away.

To ascertain whether the Shearwater can stand upright or whether it goes on its tarsi while on land, I brought three adults and two fledged youngsters into my house one evening. I may say I have never seen a Shearwater in natural life standing on its toes, as depicted in many of the older bird books. These five birds all adopted the usual posture of the Shearwater when sitting, *i.e.*, lying flat on the tarsi and breast. Both adult and young, when cornered, stood up on their webbed toes and supported their bodies by resting on their tails, which were bent by the pressure, kangaroo-fashion, their wings half-extended in an attitude of defiance. The adults ran quickly along the floor *upright* on their toes, for distances varying from six to ten feet, at the end of which they would fall forward upon their breasts for a moment before again making a forward run on their toes. This was their mode of progress, and they kept their wings folded all the time. This is how they progress, one imagines, along the passage of their burrows. The young birds, on the other hand, were unsteady on their toes, and used their wings the whole time as they flapped across the floor. They seemed unable to make a run forward, but simply lifted the breast up by pressing the wings on the floor, and at the same time pushed with the toes, thus throwing the body forward after every stroke of the wings.

Side by side, adult and fully fledged young are almost, but not quite, indistinguishable from each other. The markings are the same, but the colouring is slightly different. In the adult the black plumage is a little faded to a perceptible brownish shade, especially on the crown and nape of neck; the young bird is unfaded. The most reliable difference, however, is in the shade of the pink of the tarsus and toes. In the young bird it is a bright flesh pink, in the adult a pale

pink with a distinct leaden tinge. The difference was so noticeable as to be a means of identifying all those birds without down on them which I examined in September. The colour of the webbing and toes of the "sole" of the foot in the young bird is usually a uniform and fresh black all over, that of the adult usually streaked and marked with pale pink, but I did not find this entirely constant in some thirty birds which I examined.

One of the last observations which I made was that of the behaviour of young birds on reaching the sea. On September 10th I ringed a fledged bird by daylight and dropped it over a ledge 15 feet above the sea. The bird struck the water with a splash and paddled a few strokes with wings half-spread on the surface of the sea. It then dived, using feet and wings to swim with under water. It stayed below for thirteen seconds, rising a few yards away. It then swam very low in the water, with wings half-submerged, for perhaps four yards before diving again, and remaining under for sixteen seconds. This time it rose some distance from the shore and continued to dive and swim alternately until it passed out of sight seawards. This bird weighed 12 ozs. and was not in a fat condition.

On September 13th I ringed another fledged bird and allowed it to fly over a ledge 12 feet above the sea. It fluttered down at an angle of 45° and, on reaching the sea, began to swim, using legs and wings as on land, its wings practically submerged. As it swam it sipped water, holding its head up to let the water run down its throat as a chicken does. It then began to wash itself exactly like a duck does, dipping its head and shaking its wings and body. Suddenly it dived, remaining under water for twenty-four seconds. It then came up so close to the rocky shore that I thought it was about to land. However, it swam off, continued washing, and presently dived and remained below twenty-one seconds. Finally it swam and dived alternately, until it passed out of sight seawards. This bird weighed 15 ozs. and was in good condition.

This habit of diving rather than flying helps one to distinguish the young birds from the adults at sea in September and October. The newly-fledged bird rarely flies, but prefers to dive when approached by a boat. On the few occasions when I have seen them fly the dash and effortless skimming of the adult is absent and the flight is laboured over the calm sea.

NOTES

ERYTHRISTIC EGGS OF ROOK.

On March 30th, 1929, after examining a considerable number of nests of the Rook (*Corvus f. frugilegus*) in a large Rookery in co. Down, I came across one containing three eggs of a true erythristic type. While all three eggs have a pale flesh-coloured ground, one is finely spotted with reddish-brown and pale mauve; the other two, in addition to being similarly spotted, are blotched with reddish-brown and pale mauve, the blotches in one being larger than in the other. No further eggs had been laid by April 2nd and incubation had been in progress quite four days.

On April 21st the bird was found to have laid a second clutch, containing four eggs, in the same nest. In this set both the spotted and blotched types occur, but with slightly heavier markings. These eggs had been incubated about seven days. On this occasion I was accompanied by my friend, Mr. L. J. Turtle, who on May 12th was surprised to find the same nest again occupied. On inspection, the Rook was found to be sitting on three eggs similar to those already described, except that they were of slightly darker shade.

Mr. W. E. Renaut exhibited an erythristic egg ascribed to the Rook at a meeting of the British Oological Association (*cf. Bulletin B.O.A.*, No. 22). Mr. G. R. Humphreys, who has seen both, thinks that the Irish eggs are lighter in ground-colour and the blotches smaller and reddish-brown instead of wine-coloured. HERBERT T. MALCOMSON.

NESTLING WOOD-WARBLERS "HISSING."

With reference to Miss B. A. Carter's note (*antea*, p. 161), I do not remember having made any observations as regards the hissing of Willow-Warblers in the nest. But having made a very extended study of the Wood-Warbler (*Phylloscopus s. sibilatrix*) for a number of years, I can give some statistics which show that the habit is not at all unusual in their nestlings. In the last three years I have examined 333 occupied nests. Only sixty of these contained young as old as a week. In 1927, in five instances out of sixteen the young "hissed" at me; in 1928 ten out of twenty-seven; in 1929 three out of twelve. In all thirty per cent. In six cases the nestlings had their eyes still half sealed. There was a good deal of difference in the degree of intimidation

put into the performance, but it could be quite startling. It seemed to have little or no relation to the behaviour of the parents; for instance, at one nest where the young were exceptionally demonstrative, both parents were unusually calm and continued to deliver food while I stood a yard or two away. This explosive kind of defiant "hiss" is uttered by the young with gaping mouths and necks fully extended at the intruder and always simultaneously by the whole family. Sometimes it has been delivered before I have offered to touch the nest. Twice, however, it came at the very last moment and just in time to save them being trodden on, when I was moving about with great caution in search of a well-hidden nest.

It is noticeable on the other hand, that, when almost fully fledged, the young will often allow themselves to be handled and replaced without a struggle or a sound from beginning to end; but just as often, when they are equally quiescent, the word goes round for a "*sauve qui peut*" the moment they are liberated, and nothing can stop it.

A. H. MACHELL COX.

ABNORMAL CLUTCHES OF SONG-THRUSH.

ON April 17th, 1929, I found in a holly in my grounds in co. Donegal, Ireland, a nest of Song-Thrush (*Turdus ph. clarkei*) containing eight eggs. The female was sitting and although I substituted other Song-Thrush's eggs in place of her own, she deserted the nest. On May 5th I found a second nest of this bird, fifteen yards from the first and in a yew. On examining its contents I was astonished to find that another set of eight eggs had been laid. The female was again sitting. The eggs are all of a peculiar type, the markings being confined to the extremity of the larger end. In each set three eggs were slightly smaller than the rest. No other Song-Thrushes were in the vicinity, and the fact that the same number of eggs occurred in two successive nests is, I think, definite proof that they were the product of a single female. The fine springlike weather of March no doubt had its effect on egg production amongst our resident birds, but, even so, the occurrence which I have related, is, I imagine, a most remarkable one.

C. V. STONEY.

[This interesting record is the more remarkable as Ussher long ago pointed out that many species lay fewer eggs in Ireland than in Great Britain and also because the evidence that all the eggs were laid by one hen is strong. I have notes of four or five clutches of seven eggs, and four other cases in

which eight eggs were found in one nest, but in one of these instances there is reason to believe that two females were laying together (*Zool.*, 1889, p. 436). There are also two recorded cases of nine eggs. —F. C. R. JOURDAIN.]

THE *SOTTO VOCE* WARBLE OF THE BLACKBIRD.

THAT the Blackbird (*Turdus m. merula*) delights in singing to himself in meditative fashion under his breath must be familiar to all students of bird-life. Personally, I have never observed until to-day (November 26th, 1929) how the sound is produced; if I am not making the mistake of generalising from a single experience, I should say that there is actually nothing to observe! I have just begun to try to tame a cock Blackbird in my garden. To-day he was tempted to partake of a feast of meal-worms at my feet, and, having done himself well, he returned to the wall a few yards away. Presently I heard an extremely subdued warble in leisurely and contented tones which almost obviously proceeded from the Blackbird I had been feeding, but closely as I regarded him I could not detect the slightest movement of bill or throat. After a full minute of a performance which I do not think I could have heard at all at twenty yards' distance, I enticed him to another meal, and the moment he descended to it the music ceased. A. H. MACHELL COX.

PEREGRINE FALCON REARING FIVE YOUNG.

ON June 10th, 1929, I saw five young taken from the eyrie of a Peregrine Falcon (*Falco p. peregrinus*) in the sea cliffs of co. Donegal. They were about a month old and the brood consisted of three falcons and two tiercels. The man who took them, an expert cliff-climber, told me that in an experience extending over forty years he had never known of more than four eggs or young in one eyrie. Although, I believe, clutches of five eggs have sometimes been found, the rearing of five young must be a most unusual event. C. V. STONEY.

[Five eggs have been found in an eyrie on about eight occasions in the British Isles (*cf. B.B.* VIII., pp. 26, 52 and XVII., p. 62, etc.). There is a statement in the *Zoologist*, 1869, p. 1670, by Mr. Tracy that on one occasion he saw six young in a nest in Pembrokeshire.—F.C.R.J.]

HEN-HARRIER IN ANGLESEY.

WHEN the wind in north Wales went round to a northerly quarter on November 15th, 1929, a great increase took place

in the winter migrants from the north and east. A few raptorials accompanied this great migration. On November 17th, which was a sunny, cold day, the Malldraeth, the big central marsh of Anglesey, was the scene of one of those episodes which help us to understand the "way birds live."

A wandering Peregrine was waiting on the arm of a telegraph post for view of quarry, when a Hen-Harrier (*Circus cyaneus*) rose from the ground among the reeds and began to quarter the marsh in the manner so characteristic of the Harriers. The Peregrine left his stance and stooped several times at the Harrier. The attack was not pressed home, but it sufficed to put the Harrier quite off his game. He got away from that part of the marsh and the Peregrine returned to his telegraph pole.

In a few minutes, in another part of the marsh, the Harrier disturbed three Ravens which were feeding on the ground. They rose and pursued the Harrier with great determination and at their best speed. The Harrier had no difficulty in keeping them at a distance, but he was obliged to give up hunting, and soon began to rise in wide curves. The Ravens, at least, two of them, hung on, rising after and ultimately following him to a great height. The birds as they rose drifted slowly southward before the gentle N.E. wind. They were watched for some fifteen minutes with the field glass, and when last seen had reached a height of certainly a couple of thousand feet. Throughout this long ascent the Harrier kept up an unbroken rhythmic wing-beat. Never once did he soar or glide as a Buzzard would have done. The rhythm of the Harrier's flight is remarkable. It is not as rapid as the Raven's and has a certain quality which reminds one vaguely of a Tern's wing-beat. This quality is of course nothing like so marked as in the Tern's flight, nor even so marked as in the Black-headed Gull's, which also shows it. One is reminded of the remark of a well-known observer, that the male Hen-Harrier in flight recalls a Gull.

Last year, 1928, a Hen-Harrier was first seen on this marsh on November 18th, and after, whenever the marsh was visited, up to December 5th (*B.B.*, XXII., p. 330).

KENNEDY ORTON.

MALLARD KILLING HOUSE-SPARROW.

ONE morning in October, 1929, I was watching the ducks being fed on St. James's Park Lake. Some Sparrows (*Passer d. domesticus*) had also gathered and all of a sudden a female Mallard (*Anas p. platyrhynchus*) seized one by the head and

carried it away from the shore. It shook the unfortunate bird and held it under water until it appeared to drown. What the duck did with it afterwards I could not see.

R. J. BUXTON.

VELVET-SCOTER IN MIDDLESEX.

ON November 23rd, 1929, Mr. Holte Macpherson and I saw a Velvet-Scoter (*Oidemia f. fusca*) on the North Reservoir at Staines. The plumage was black, not brown; the white wing-bar was large and exceedingly conspicuous. The colour of the upper mandible, where it was not black, was yellow. In front of the eye we could discover no trace of white, nor was there any sign of the small, crescentic white spot below the eye which is seen in adult drakes. Behind the eye, however, there was an irregular white patch of considerable size, similar in position to the patch which is found behind the eyes of females and immature birds. It appears, therefore, that the bird must have been a drake assuming the full adult dress. On the following day Mr. Macpherson and several others visited the reservoirs and looked for it without success.

As far as I am aware, there is only one record of this species for Surrey, a young bird which was seen by Mr. Donald Gunn at the Barn Elms Reservoirs on December 3rd, 1927; and there appears to be only one previous record for the county of Middlesex, a bird (possibly the one seen at Barn Elms) which was observed by Mr. J. W. Castle and Mr. Gunn at Staines a few days later in the same December.

F. R. FINCH.

MANX SHEARWATERS' DEPARTURE FLIGHT FROM LAND.

AT the beginning of August, 1929, I camped for a few days on Annet, one of the Scilly Isles, with a view to studying the habits of the Manx Shearwater (*Puffinus p. puffinus*).

Each night the birds began to come out of their burrows at about 11.30 summer time. They seemed quite incapable of rising straight into the air but flapped along the ground on their fully-extended wings, increasing their speed until they reached the water's edge, at which point they seemed to have gained sufficient impetus to leave the ground, although some flapped down the steep slope to the sea, where they appeared to rise with much less difficulty, flying off with great speed. As far as could be seen all returning birds flew straight to their burrows.

Annet is a low and fairly flat island covered with coarse grass and thrift, and these Shearwaters, unlike those on Skomer described by Miss D. T. Raikes (*antea*, p. 164), did not climb to the highest part of the island but made straight for the sea.

It was not a question of long wings and comparatively short legs hindering the birds from getting a start, since when thrown into the air to try and make them take wing, they only used their wings to break the fall, and then continued the slow flapping journey over the grass. Also, when placed on a high rock from which it would have been an easy matter to take off, they merely fluttered off and fell to the ground each time. This was done to a large number of birds, both young and old, and they all behaved in the same way.

B. B. ROBERTS.

DEPARTURE AND LANDING OF MANX SHEARWATERS.

I WAS interested in Miss D. T. Raikes' experience with Manx Shearwaters (*Puffinus p. puffinus*) on Skomer Island (*antea*, p. 164).

I was able to watch these birds emerge from their nesting holes, and their method of getting on the wing in the Isles of Scilly in 1911, and in 1914 I had the weird experience of a night on Annet, where they nest in countless thousands. As many naturalists visiting the islands in June have witnessed this, the experience has probably already been described.

At dusk, one becomes aware of a rustling sound under one's feet; then a bird starts to crow and others immediately follow suit, until everywhere this muffled crowing is going on in the labyrinth of tunnels underground. Then in the dim twilight thousands of shadowy grey shapes are seen crawling from the holes and along the ground—a most uncanny spectacle. The birds shuffle along towards any eminence, up which they scramble with the assistance of their claws, and, occasionally, wings. This is generally a rock on the higher ground, but they will even attempt to clamber up on to one's shoulders. The reason for seeking an eminence from which to launch off into the air, is that their very long pointed wings make it impossible for them to get up off level ground; and if this taking-off place is not sufficiently high for them to get well on the wing they crash heavily to the earth. Once safely launched, they circle round at great speed, the air being full of their calls, and then make for the sea. It is dangerous to stand up when this pandemonium is at its

height. In about twenty minutes the exodus is over, and, as far as Shearwaters are concerned, there is no further movement until just before dawn, when they come back from the sea. This again is a peculiar experience, for the birds cannot land properly upon a flat surface. The wings strike the ground first and they turn several somersaults before coming to rest and scuttling into their holes. It is then that, taken at a disadvantage, the big Gulls awaiting their prey fall upon them and a terrible carnage ensues. The Herring and Lesser Black-backed Gulls (*Larus a. argentatus* and *L. fuscus affinis*) disembowel them and swallow the smoking entrails, leaving the flesh to be eaten later when the flight is over, such skins being found turned inside out, and some of the nests of the Great Black-backed Gull on Annet are made (sometimes entirely) of the dried skins of the victims. The Great Black-backed Gulls usually swallow them whole, bringing up their skulls in pellets or casts (*see* Vol. V., pp. 55 and 88).

The nights spent on Annet were usually calm but a breeze makes no difference to the proceedings. From the fact that incubating Shearwaters marked with rings on one day are not the same birds found on those eggs on the following day, it looks as if the shifts are long ones, and that the birds returning in the early hours of the morning are the relieving birds, *i.e.*, each bird of a pair incubates for an eighteen to twenty-hour shift whilst the partner goes off to feed. H. W. ROBINSON.

RUFF AND CURLEW-SANDPIPERS IN WINTER IN DURHAM.

THE majority of the passage waders, which were to be seen on the Darlington Sewage Farm in the autumn of 1928, departed by the beginning of October. On December 9th, however, one Ruff (*Philomachus pugnax*) and about a dozen Curlew-Sandpipers (*Calidris testacea*) were seen. This was during a spell of very severe cold. The Curlew-Sandpipers were not seen again, but the Ruff evidently stayed the winter, for it was seen in January, February, April, May and July of 1929. By the end of April it was assuming breeding plumage. I believe this bird remained until it was joined by others of the same species on passage in August. W. E. ALMOND.

A PREENING HABIT OF THE REDSHANK AND OTHER WADERS.

WRITING on Alberta waders, Professor W. Rowan says of the Yellowshank: "The habit of dipping the bill into water at

intervals whilst preening I have never observed in any other species and it is very constant with the Yellowshank" (*antea*, p. 5).

In the early part of August, 1928, I watched at close quarters a Redshank (*Tringa t. totanus*) on two successive evenings while preening in shallow water, and saw this action of dipping the bill repeated many times with short intervening periods. The movement was made with great rapidity and precision, only the extreme tip of the bill touching the water; but I could plainly see the very small rings created on the still surface.

In August, 1929, I saw the same habit practised by a Common Sandpiper (*Tringa hypoleucos*) which was preening its plumage beside running water; but in this instance the action was performed with less delicacy, the bill being vigorously thrust into the flowing water.

On November 9th, 1929,—a very late date for the district—I watched at but little distance and in an excellent light one of two Green Sandpipers (*Tringa ochropus*) preening in shallow water, and saw the bill dipped repeatedly. With this species the action was not performed so frequently as in the case of the Redshank, one dip sufficing to dress the feathers of two or three different parts.

From these instances it would seem probable that this is a generic habit and common to other species of *Tringa*, and possibly other waders also. E. ST. G. BETTS.

ERYTHRISTIC EGG OF ROSEATE TERN.

ON June 30th, 1929, whilst examining a breeding colony of Roseate Terns (*Sterna d. dougallii*) off the Irish coast in company with Mr. H. Malcomson, we obtained an erythristic egg of this species. The egg has a pale rosy-pink ground, the markings being of a slightly darker shade. I should be glad to know if any other examples of erythrism are known in the eggs of this Tern. C. V. STONEY.

BLACK-HEADED GULLS EATING LEAVES.

ON October 25th, 1929, I was watching the birds on the "Heron Pond," Bushy Park, Middlesex. There were thirty-eight Black-headed Gulls (*Larus r. ridibundus*) and for no apparent reason they all suddenly rose and flew to the end of the pond, then wheeled and came flying slowly back, but this time over a row of smallish thorn trees on the opposite side to me. At first I thought they were trying to alight on the thin upper twigs, but closer observation through my

glasses showed me they were doing something with their bills, and not with their feet as I had thought. The whole flock fluttered slowly among the topmost branches, going from tree to tree down the row, and then turned and repeated the performance on the return journey. This time the light was better, and I now saw that the Gulls were snatching at the leaves of the thorns with their bills as quickly as they could while hovering and fluttering along. After this they wheeled round and settled on the pond again and I went round to examine the trees. Owing to a protecting fence I could not climb any, but my glasses showed that most of the topmost leaves of all the trees had quite perceptible gaps in them—like very large serrations—while the lower leaves were whole and normal. It was evident from the number of leaves attacked that this was not the first time the Gulls had done this, and the organised way they set about it showed the same. I secured a branch and sent it to Kew Gardens, and am informed the tree is *Cratægus carrierei*. ROBERT PATTERSON.

IMMIGRATION OF CROSSBILLS.—The following further reports (*see* pp. 69, 101, 135, 167) on the movements of Crossbills have been received :—

FORFARSHIRE.—Mrs. Seton Gordon informs us that she observed small parties at Kinnaird Castle from July 17th to 24th, and as the Scottish Crossbill does not nest in the district these would appear to have been immigrants. Mrs. Gordon notes that parties of Chaffinches appeared to accompany the Crossbills and picked up those seeds which fell to the ground from cones upon which the Crossbills were feeding.

BASS ROCK.—Dr. J. Ritchie was informed by Mr. J. Bain that thirty arrived on the Bass on July 4th, and that eight were still there when Mr. Bain left on the 6th. (*Scot. Nat.*, 1929, p. 102.)

RUTLANDSHIRE.—Mr. B. B. Roberts saw five at Uppingham on November 20th and eight on the 24th.

KENT.—Dr. N. F. Ticehurst reports that on September 2nd at Tenterden "worked" cones showed that small numbers of Crossbills had been present, and on October 19th his son, H. F. Ticehurst, saw a party of twelve to fifteen in East Sutton Park.

BUCKINGHAMSHIRE.—Small parties of Crossbills have been present in several woods near Fawley during November and December. (H. F. Witherby.)

SOMERSETSHIRE.—Mr. H. Leyborne Popham writes that he noticed some thirty Crossbills at Pensford during the last three weeks of October.

GLOUCESTERSHIRE.—Mr. H. F. Webb saw a party of eight on November 10th at Wotton-under Edge.

CHESHIRE.—Mr. A. W. Boyd is informed by Mr. W. Orr that Crossbills were present in the Delamere Forest district on August 25th.

OUTER HEBRIDES.—Dr. J. Ritchie states that on July 12th a small flock was seen at Stornoway, and others at Eishken Lodge and Lewis Castle. (*Scot. Nat.*, 1929, p. 102.)

TIME-PERIODS FOR NEST AND EGG REPLACEMENT.

In Vol. XVIII. of *British Birds*, several notes on the above subject appear and the following cases from west Sussex may be of interest. It will be seen that whether incubation is advanced or otherwise apparently makes no difference in the time taken for nest and egg replacement :—

Species.	Number of eggs.	Date.	New Eggs.	Nest. Date.	Time-period in Days.
Carrion-Crow (*C. c. corone*) ...	... 4	17.IV.	5	30.IV.	13
Jackdaw (*C. m. spermologus*) ...	... 6	25.IV.	5	10.V.	15*
Chaffinch (*F. c. cœlebs*) ...	... 5	27.IV.(1)	4	7.V.	10
Corn-Bunting (*E. c. calandra*)	... 3	22.VI.	2	11.VII.(2)	19*
Yellow Bunting (*E. c. citrinella*)	... 4	23.VII.	3	3.VIII.	11
Cirl Bunting (*E. cirlus*) ...	... †	9.VII.	3	19.VII.	10
,, ,, ...	... 3	18.VII.	3	28.VII.	10
,, ,, ...	... 4	27.VII.	3	6.VIII.	10
,, ,, ...	... 4	6.VII.	4	15.VII.	9
,, ,, ...	... 3	15.VII.	4	26.VII.	11*
Reed-Bunting (*E. s. schœniclus*)	... 3	17.VI.	3	27.VI.	10*
,, ,,	... 5	23.V.	5	2.VI.	10
Wood-Lark (*L. a. arborea*) ...	... 4	9.IV.	5	25.IV.(3)	16*
,, ,, ...	... 4	25.IV.(4)	5	9.V.(5)	14*
Red-backed Shrike (*L. c. collurio*)	... 5	8.VI.	5	17.VI.	9
,, ,,	... 3	13.VI.	4	23.VI.	10*
Willow-Warbler (*Ph. t. trochilus*)	... 8	11.V.	7	24.V.(6)	13*
Grasshopper-Warbler (*L. n. nævia*)	... 6	10.VI.	5	19.VI.	9
Reed-Warbler (*A. s. scirpaceus*)	... 5	7.VI.	4	16.VI.	9
,, ,,	... ‡	29.VI.	4	8.VII.	9
Sedge-Warbler (*A. schœnobænus*)	... 5	9.VII.	3	19.VII.	10
,, ,,	... 5	30.V.	5	8.VI.	9
,, ,,	... ‡	22.VI.	4	2.VII.	10
,, ,,	... 4	16.VI.	4	28.VI.	10
,, ,,	... 4	17.VI.	4	2.VII.	15
,, ,,	... 5(7)	3.VI.	6	20.VI.(8)	17
Stonechat (*S. t. hibernans*) ...	... 6	12.IV(9)	6	27.IV.	15
Hedge-Sparrow (*P. m. hibernans*)	... 4	3.VI.	4	12.VI.	9
,, ,,	... 4	3.VI.	4	12.VI.	9
,, ,,	... 3	21.VI.	3	30.VI.	9
Green Woodpecker (*Picus v. virescens*)	5	11.V.	6	9.VI.(10)	29
Stone-Curlew(*Burhinus œ. œdicnemus*)	2	30.V.	2	12.VI.	13

RAYMOND CARLYON-BRITTON.

* Maximum. (1) Incubation "very much indeed." (2) Incubation "slight only." † Young left nest. (3) Incubation very slight. (4) Incubation "very much indeed." (5) Incubation three eggs "very slight," two eggs fresh. (6) Incubation fresh to very slight. ‡ Young killed. (7) Including Cuckoo's egg. (8) New nest built on top of old one; incubation fresh. (9) Incubation very much indeed. (10) Same hole further excavated in yew tree.

WHITE STARLING IN SUSSEX.—Mr. J. F. Thomas informs us that on October 20th, 1929, near Seaford, he saw a Starling (*Sturnus vulgaris*) which appeared pure white to the naked eye at thirty yards, but with strong binoculars a slight duskiness on the head and some primaries could be seen. The feet and bill appeared pinkish-white. The bird was in a flock of normally coloured Starlings.

BLACK-HEADED BUNTING AT FAIR ISLE.—A male *Emberiza melanocephala* obtained at Fair Isle on May 27th, 1929, is recorded by Mr. J. Wilson (*Scot. Nat.*, 1929, p. 164), and the skin was kindly shown to us by Mr. J. A. Armitage in whose possession it now is. This is the third Fair Isle occurrence and the tenth British.

LESSER WHITETHROAT BREEDING IN INVERNESS-SHIRE.—Miss D. Parker-Rhodes states (*Scot. Nat.*, 1929, p. 164) that in July, 1929, she watched a pair of *Sylvia curruca* with a nest for several days at Roy Bridge. The birds, however, deserted the nest and it was sent with two eggs to Dr. W. Eagle Clarke, who pronounced the eggs typical of the species. There are very few authentic breeding records of the Lesser Whitethroat for Scotland.

FLEDGING-PERIOD OF RING-OUZEL.—Admiral Stenhouse states (*Scot. Nat.*, 1929, p. 108) that he found in Berwickshire a nest of *Turdus t. torquatus* with one newly-hatched young and three chipped eggs on June 10th, 1929. On June 24th the young had left the nest but were in its immediate vicinity: making a fledging-period of not more than fourteen days.

NORTHERN GREAT SPOTTED WOODPECKERS IN SHETLAND.—An immigration of *Dryobates m. major* to the Shetlands is noted in the *Scottish Naturalist* (1929, p. 138). The first arrivals were seen in Fair Isle on August 20th, 1929, and subsequently specimens were sent to the Royal Scottish Museum from Unst, September 2nd; Foula, September 8th; Mainland, October 8th and 18th. A considerable migration of the bird in September is recorded from Heligoland and the German North Sea coast (*Orn. Monatsber.*, 1929, p. 184), but we have not heard of any from the English east coast.

HEN-HARRIER IN SUSSEX.—Mr. J. F. Thomas informs us that he saw a *Circus cyaneus* female, or immature male, at Seaford on November 12th, 1929, and again on December 4th when it killed a Blackbird.

FERRUGINOUS DUCKS IN SELKIRKSHIRE.—Mr. G. D. Davidson states (*Scot. Nat.*, 1929, p. 86) that on February 17th, and 19th, 1929, he saw a pair of *Nyroca nyroca* (very rarely recorded in Scotland) on the Tweed at Melrose.

A CENSUS OF BASS ROCK GANNETS.—Dr. J. Ritchie writes in the *Scottish Naturalist* (1929, pp. 127–132) of a count of the nests of the Gannet (*Sula bassana*) on the Bass Rock made in 1929 by Mr. J. Bain, the lightkeeper. Mr. Bain has made a very painstaking survey, dividing the cliffs into series of sections and counting, with the aid of binoculars, the actual nests in each section from definite points of vantage. From this it would appear that there were 8,294 adult breeding Gannets on the Bass in 1929. Various estimates made in different ways were given by the late J. H. Gurney in his book *The Gannet*, and perhaps the figure of 7,000 to 8,000 birds arrived at by the late William Evans, based on many visits and photographs made about twenty-five years ago, was the nearest. In 1928 Mr. Bain noted that all the Gannets did not leave the rock until November 13th, when the last young bird was fledged. In 1929 they arrived on January 13th and the first egg was laid on March 31st.

SLAVONIAN GREBE BREEDING IN SUTHERLAND.—Miss E. V. Baxter and Miss L. J. Rintoul give details of the status of various species in Sutherland and Caithness as the result of a short visit in May, 1929, which have local interest. They also record that they found a colony of four pairs of *Podiceps auritus* (*Scot. Nat.*, 1929, p. 85). This is a very interesting extension of the known range of the bird in Scotland. We have also good evidence that the bird is spreading in the district where it was first discovered.

TURTLE-DOVE IN ARGYLLSHIRE.—A young *Streptopelia t. turtur* was obtained at Salen, Acharacle, on August 29th, 1929 (*Scot. Nat.*, 1929, p. 163).

SPOTTED REDSHANK IN FIFESHIRE.—Miss L. J. Rintoul and Miss E. V. Baxter observed a *Tringa erythropus* at Balcomie on August 26th, 1929 (*Scot. Nat.*, 1929, p. 163).

GREY PHALAROPES IN WALES.—Mr. G. C. S. Ingram informs us that Mr. W. F. Bentley has sent him a Grey Phalarope (*Phalaropus fulicarius*) which was picked up dead near Pembroke on December 7th, 1929. Mr. H. E. Forrest tells us that Mr. A. Hamilton saw a bird of this species for five days early in November in the Conway estuary.

BLACK-TAILED GODWITS IN ROXBURGHSHIRE.—Miss L. J. Rintoul saw five *Limosa l. limosa* at Horselaw Loch on April 29th, 1929 (*Scot. Nat.*, 1929, p. 163).

BAILLON'S CRAKE AT FAIR ISLE.—Mr. E. Stout records (*Scot. Nat.*, 1929, p. 91) that a female *Porzana p. intermedia* was obtained on Fair Isle on May 11th, 1929. The ovary contained well-developed eggs. The bird has not previously been recorded from the Shetlands or Orkneys.

LETTERS.

THE BIRDS OF NORFOLK.

To the Editors of BRITISH BIRDS.

SIRS,—Will you allow me space to make known that I am now engaged upon a work on the birds of Norfolk with a view to bringing this county's avifauna up to date? Any information relating to this subject, which has not already been published, will be gratefully received, while authentic records of the nesting of the Hobby and the Landrail in the county in recent years are particularly asked for.

SAXLINGHAM, NORWICH. B. B. RIVIERE.

EXTRAORDINARY DISPLAY BY A PAIR OF HEDGE-SPARROWS.

To the Editors of BRITISH BIRDS.

SIRS,—The notes which have already appeared on this subject (*antea*, pp. 19, 103 and 199) recall an observation which I first made in the last week of May, 1919. In my garden a pair of Hedge-Sparrows had successfully reared a brood which was on the wing and feeding on their own; the male had begun to sing again. The pair were feeding on the top of a low grassy stone wall, when the female approached the male and attracted his attention by raised tail, quivering wings and a quickly-repeated call of a Hedge-Sparrow type. I turned the field-glass on her, and in the good light and excellent position, saw the mouth of the cloaca obviously distended and flushed. The male approached also with quivering wings and gently pecked the opening. This was repeated several times. No coupling took place then. Six days later I discovered the nest with three eggs; ultimately a second brood was reared.

I have often since looked for a similar display in other birds, especially in Robins and House-Sparrows, inhabiting one's gardens and as tame as Hedge-Sparrows. Robins are singularly reticent in their mating displays and keep generally under thick cover. The House-Sparrow can be observed more easily, but is generally at higher levels on roofs and trees than the Hedge-Sparrow. I have, however, succeeded in catching the same stage in the mating process on two or three occasions. The female House-Sparrow undoubtedly initiates the display. It was only noticed relatively late in the season, late May or early June. I never saw coupling follow immediately.

KENNEDY ORTON

NESTING OF RED-BREASTED MERGANSER IN DUMFRIESSHIRE.

(*To the Editors of* BRITISH BIRDS.)

SIRS,—I am naturally much interested in Mr. Ernest Blezard's record (*supra*, pp. 132–133) which, so far as I know, is the first for Dumfriesshire. In the year 1926 I was told that Goosanders had bred on the river Annan, and in September of that year I was sent a bird which I identified as a young male Goosander of the year; but, of course, it is possible that my identification may have been wrong. It is, however, noteworthy that in the spring of 1926 I myself repeatedly saw a pair of Goosanders on the river Nith, which were also often seen by Messrs. Walter and Arthur Bryce-Duncan, but we were never able to ascertain that they bred. Since 1926 I have annually tried to obtain better evidence (in the shape of some down and an egg) of the Goosander nesting locally, but without success, and, needless to say, I have not been so fortunate as Mr. Blezard in discovering a Red-breasted Merganser's nest and eggs. May I add that both the Red-breasted Merganser and the Goosander are equally familiar to me, though I have never yet seen the former species inland in Dumfriesshire.

HUGH S. GLADSTONE.

REVIEWS.

Report on Somerset Birds, 1928. By Rev. F. L. Blathwayt assisted by B. W. Tucker and Rev. C. J. Pring.

THIS is a well-drawn out report with several excellent illustrations. The chief items of interest recorded are the breeding of the Tufted Duck, substantiated by a beautiful photograph by Mr. Coldstream Tuckett; the breeding of the Crossbill, three nests having been examined by Mr. S. Lewis, while in another district some were considered to have bred, but this was not proved; the Teal bred in 1927 and is reported here, with two photographs of the nest by Mr. S. Lewis; the Lesser Tern was proved to breed, and the nest was photographed by Mr. Tucker (in previous years birds had been seen, but there was no definite proof of nesting). Besides these important breeding records there are many other interesting items contributed by a number of observers and carefully put together by the editors.

Report of the Cambridge Ornithological Club, 1928.

THIS is the second report of this Club, which we hope will have a successful future. The report contains a number of useful notes from various districts arranged under species headings. Among the more interesting we may mention two broods of Garganey (*Anas querquedula*) identified on July 21st by Mr. W. H. Thompson in Adventurer's Fen; three Black-tailed Godwits (*Limosa limosa*) seen in the Fens on March 23rd by Mr. F. S. Chapman and Dr. E. A. R. Ennion; a pair of Blue-headed Wagtails (*Motacilla f. flava*) at the Sewage Farm, which by their behaviour in July might have had a nest; a Spotted Redshank (*Tringa erythropus*) at the Sewage Farm on May 8th, and the report of a Nutcracker in Cambridge in October.

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NOTES FROM RESERVOIRS AND SEWAGE FARMS.

Passage Waders on a Cheshire Sewage Farm in the Autumn of 1929.

By T. A. Coward.

From July 26th, when autumnal movements became apparent, until the end of November, I paid frequent visits to the Altrincham Sewage Farm, and during my absence—from September 6th to the 20th—Messrs. A. W. Boyd, A. G. Haworth and I. Whittaker watched the farm, and their notes are incorporated with mine. Mr. Charles Oldham and Mr. T. Baddeley accompanied me occasionally and saw some of the more unusual visitors. In addition to Waders there were usually many Gulls present—Black-headed, Herring, Lesser Black-backed and Common Gulls—and Teal, over thirty towards the end of September, were frequently on the flooded tanks. Certain sudden but temporary decreases in numbers may have been due to shooting on previous days, for the farm is occasionally shot over.

Ringed Plover (*Charadrius h. hiaticula*).—First noted, two or three, on August 5th; the numbers rose to nine on September 4th and dropped to one on September 12th.

Golden Plover (*Charadrius apricarius*).—Though an abundant passage migrant in pastures in the neighbourhood, this bird seldom comes to the tanks. One young bird was there on August 30th, and three on September 5th; after this there were usually a few with the Lapwings, the largest numbers being seventeen on September 25th, but from then until October 12th, when ten alighted, I did not see any.

Lapwing (*Vanellus vanellus*).—Always present in considerable numbers, and sometimes very numerous, either as passage birds or winter visitors. Well over three hundred on the sludge on November 21st.

Turnstone (*Arenaria i. interpres*).—I saw a single Turnstone with Dunlins on August 14th, and Mr. Boyd saw one on September 2nd. These birds apparently stopped only for a few hours; I did not see the second bird on September 3rd, and on August 31st, when I was there with Mr. Boyd and Mr. J. Armitage, I feel sure that it had not arrived.

Ruff (*Philomachus pugnax*).—Ruffs and Reeves were present from August 31st, when we saw a single bird, until September 19th. From September 3rd to the 7th, five birds, three Ruffs and two Reeves, were usually on one particular

tank. On September 25th there were three, and still two on the 28th.

DUNLIN (*Calidris alpina*).—On July 26th fourteen or fifteen Dunlins were present, and from then until September 3rd the parties numbered twelve to thirty birds. During September, after this date, until October 12th, there were seldom more than half a dozen, and often no Dunlins visible. On the 18th I counted ten or twelve, on the 21st three or four, and four on November 21st.

CURLEW-SANDPIPER (*Calidris testacea*).—There was a single Curlew-Sandpiper, still in summer plumage, with the Dunlins on July 26th, and from September 13th to the 19th, two were seen. From September 22nd until October 3rd a single bird consorted with one Dunlin, but on October 5th I found a little party of eight. The numbers gradually lessened—five, three, two—until, on October 21st, when Mr. Oldham was with me, we could find no more than one, the last that I saw.

COMMON SANDPIPER (*Tringa hypoleucos*).—On twelve different dates between July 26th and September 25th Common Sandpipers were present, mostly single birds, though once six together, and three times three. After this date I saw only a single bird, on October 8th.

WOOD-SANDPIPER (*Tringa glareola*). GREEN SANDPIPER (*Tringa ochropus*).—Once or twice we were not certain if white-rumped birds which rose at a distance were Wood- or Green Sandpipers, but on August 27th five rose, and two from the size and note I felt sure were the former. On the 30th, at the same spot, for both birds are very conservative, I put up one Green and one Wood. On the 31st a Green was feeding in the usual place, and on September 2nd Mr. Boyd was not sure about five which were again there. On October 2nd I watched five Wood-Sandpipers feeding; they allowed a much nearer approach than is usual with Greens; the calls of these, and of one on the 3rd, were sufficient for identification. Green Sandpipers were also present on five visits in September, two on October 3rd, and one on the 21st.

COMMON REDSHANK (*Tringa t. totanus*).—Redshanks, though always present, were less numerous than in some previous autumns. On July 31st there was a single bird, but after that the numbers varied from two or three to twenty; there were still some half dozen at the end of November.

SPOTTED REDSHANK (*Tringa erythropus*).—The visits of this species was the most interesting feature of the autumn migration; how many different birds came we cannot say.

Some were, at one time or another, seen by each of the observers mentioned. On August 30th I found four with about a dozen Common Redshanks—the larger size, the *chewit* call, absence of the white inner border of the wing, and white on the back when the birds flew at once distinguished them from their companions. Furthermore, in winter dress, the Spotted Redshank looks much greyer and generally paler than a Common Redshank, and the eye-stripe is very noticeable. On September 2nd, 5th and 7th, Mr. Boyd saw two, and on the 9th five birds. One, two, or three were seen from the 12th to the 18th, but from then until the 28th, when Mr. Baddeley and I found two birds once more, none was noticed. These two remained until October 18th, when one vanished, but a single bird remained until at least November 8th ; at any rate, that was the last date on which I saw it.

GREENSHANK (*T. nebularia*).—A single Greenshank was on the tanks from September 2nd to the 5th.

BLACK-TAILED GODWIT (*Limosa l. limosa*).—From two to four Black-tailed Godwits stopped from August 30th until September 4th.

CURLEW (*Numenius a. arquata*).—Mr. Whittaker saw six Curlew on September 4th, and Mr. Boyd one on the 7th.

COMMON SNIPE (*Capella g. gallinago*).—Common Snipe, as usual, were very numerous, but fluctuated in numbers.

JACK SNIPE (*Lymnocryptes minimus*).—On August 30th, when Common Snipe were very abundant, I was surprised to see about twelve or fifteen Jacks feeding with a number of Common Snipe on one tank. When the Common Snipe rose and went off, these birds remained and gave me an excellent opportunity of studying their heads. They were evidently an early passage party, for we saw nothing of them on the next day, though Mr. Boyd saw a single bird on September 2nd. I did not see any more until October 18th, when I twice put up a single bird. On November 21st I flushed two, and one, which flew only about ten yards before it again dropped, uttered a feeble call when it rose the first time.

NOTES FROM STAFFORDSHIRE RESERVOIRS.

BY A. W. BOYD.

THE following observations were made at the most westerly of the large Staffordshire reservoirs and at Gailey Pool between May, 1928, and September, 1929.

Duck were as abundant as ever, and the species recorded in other years (*cf. British Birds*, Vol. XXII, p. 21 and *antea*) were almost all represented again.

I saw only two Gadwall (*Anas strepera*) on August 6th, 1928, but Garganey (*Anas querquedula*) appeared in both years: one or two on August 6th, 1928; an adult drake on March 29th, 1929, and a drake on August 18th and September 1st, 1929; possibly they have been overlooked in August previously, as they are not then so easily picked out from among a large number of duck as in spring.

There was a drake Pintail (*Anas a. acuta*) on March 29th, and again on September 1st and 21st, 1929.

Pochards (*Nyroca f. ferina*) were noticed in April, May, June and August, as well as in their more usual months. On November 25th, 1928, there were at least three hundred on Gailey Pool.

Goldeneyes (*Bucephala c. clangula*) were perhaps not quite so plentiful as usual, but on April 7th, 1929, there were still at least twenty present.

A few Goosanders (*Mergus m. merganser*) were to be seen from November till April 7th, 1929, when there were still two on the westernmost reservoir. On August 6th, 1928, I was astonished to see a brown-headed Goosander on Gailey Pool, and imagine that it must have been a "pricked" bird.

On December 24th, 1928, a grey goose (very probably a White-fronted Goose (*Anser albifrons*)) rose from a meadow by the reservoir and flew straight away before its head or breast could be seen.

Waders, though not often abundant, were interesting, and included one species not previously recorded in Staffordshire.

Ringed Plovers (*Charadrius hiaticula*) occurred in September, 1928, and in 1929 there were three on April 7th, eleven together on August 18th, and others on September 1st and 21st. On August 18th there were five at Gailey Pool.

There was a Knot (*Calidris c. canutus*) on September 21st, 1929, at Gailey Pool, a bird I had not previously seen in Staffordshire.

Dunlins (*Calidris alpina*) were present in August and September in both years—thirty-five in one flock on August 18th, 1929, being the greatest number seen.

Once again I saw a Curlew-Sandpiper (*Calidris testacea*)—the third record for the county—at Gailey Pool on September 21st, 1929. The occurrence of three at the same place on September 16th, 1928, has already been recorded (*British Birds*, Vol. XXII., p. 169).

Common Sandpipers (*Tringa hypoleucos*) lingered till September 16th, 1928, on both reservoirs, and there was one at Gailey Pool on September 1st, 1929. I saw one Greenshank

(*Tringa nebularia*) on August 18th, 1929, but the most interesting waders were two Black-tailed Godwits (*Limosa l. limosa*) seen on September 1st, 1929. Mr. J. R. B. Masefield tells me that he does not know of any other Staffordshire occurrence. The birds, which allowed us to approach very closely as they fed with some Redshanks, were in a state of chestnut plumage similar to the plumage of those which I had seen in Cheshire on the previous day, and which Mr. Coward records elsewhere.

I saw solitary Black Terns (*Chlidonias niger*) on September 16th, 1928, at the most westerly reservoir, and on September 1st, 1929, at Gailey Pool (I saw others in Cheshire on the same day), while other Terns (Common or Arctic) appeared in June and August, 1928.

Passage Migrants at North Worcestershire Reservoirs. By H. G. Alexander.

Owing to the drought there was an exceptional amount of mud at the Upper and Lower Bittell Reservoirs through the spring, summer and autumn of 1929, and the passage of maritime birds was unusual, both for the variety of species observed, and for its prolonged character. In the spring two species not previously noted here were seen, Turnstone (*Arenaria interpres*), of which one was seen by Mr. E. St. G. Betts on May 11th, and another—almost certainly a different bird—by Mr. F. R. Barlow and myself on the 13th, and Sanderling (*Crocethia alba*), of which I saw a single bird in company with ten Dunlins on May 14th. Even more noteworthy, perhaps, was the long duration of the spring passage. Both Dunlin (*Calidris alpina*) and Ringed Plover (*Charadrius hiaticula*) were noted as early as March 14th, when the ice had hardly gone—the latter a single bird flying north-east. From time to time for three months birds of both these species reappeared. On June 9th I counted no less than fourteen Ringed Plovers and two Dunlins. Terns, possibly both Arctic and Common, were seen at the beginning of June and again later in the month, and early in July the return migration was heralded by the appearance of a Green Sandpiper (*Tringa ochropus*) as well as several Common Sandpipers (*T. hypoleucos*), some passing Wagtails (*Motacilla a. yarrellii*), and a young Wheatear (*Œ. œ. œnanthe*) on July 11th.

Throughout August and September waders of various species were constantly passing. Ringed Plovers were to be seen almost daily in September, but the appearance of

Dunlins was much more erratic. A single Greenshank (*T. nebularia*)—possibly always the same bird—was seen frequently between August 11th and September 2nd.

Several less common waders were seen in September. Mr. Betts watched an immature Knot (*C. canutus*) on September 7th at very close quarters; his identification was confirmed from a very exact description sent to Mr. Witherby. This appears to be another new species for Worcestershire. On September 9th a Ruff and Reeve (*Ph. pugnax*) were observed, and on the following day two Ruffs and a Reeve. These three birds were still present on September 13th, when there were also three Curlew-Sandpipers (*C. testacea*). On the 14th only one Ruff was seen, and the three Curlew-Sandpipers were still present. On the 17th there were only two Curlew-Sandpipers and no Ruff. Another Ruff was seen on September 24th.

Redshanks (*T. totanus*) nested by one of the reservoirs this year, and the breeding birds were last seen on July 13th. Passing birds of this species were seen from time to time between September 14th and November 9th. The last party of small waders, probably Ringed Plovers and Dunlin, was also noted on November 9th. For the first time in my experience Common Sandpipers remained till October, the last being seen on October 10th. Green Sandpipers also remained later than usual. Mr. Betts saw two on November 2nd and 9th, and Mr. Barlow and I put up a couple—perhaps the same birds—on December 16th. One was seen on the 23rd.

A number of other passing migrants have been noticed during the autumn, including Wheatears of both races, down to October 3rd; a Curlew (*N. arquata*) and three Cormorants (*P. carbo*) on September 2nd; Black-headed, Common and Lesser Black-backed Gulls, and a Merlin (*F. c. æsalon*) (the first record I have for the district) on October 24th and November 9th.

On December 7th, following the most intense of all the gales of that week, two Kittiwakes (*R. tridactyla*) were flying over the Upper Bittell reservoir for a short time between 10.45 and 11.15 a.m. One of them had a patch of oil on its plumage. Two badly oiled Black-headed Gulls were present on the same day. In my experience oiled Gulls manage to keep alive much better than diving birds, but I have not seen any so far inland before.

The reservoirs did not apparently fill up until late in November, so water-birds have been scarce. The level of the water in September and October was a good deal lower even than in 1921.

During the early autumn quantities of Rooks, Jackdaws and Carrion-Crows were to be seen daily on the great stretches of mud, apparently feeding on the stranded fresh-water mussels. Later, large flocks of Larks, Linnets and other Finches found plentiful food from the seeds of Polygonum and other small plants which had spread over a great part of the uncovered ground; in late November many Stock-Doves came to feed; and in mid-December, when there was still an unusual amount of "foreshore," this region was thickly populated with Lapwings, estimated by Mr. Betts at five hundred.

Spotted Redshank and other Migratory Waders at Tring.

By C. Oldham.

The long drought resulted in wide stretches of mud and more wading birds at Tring in 1929 than in any autumn since 1922. Properly to observe their comings and goings and the fluctuations in their numbers, one should make a circuit of the reservoirs each day from the end of July to the end of October, but this was not practicable, and, although I was there frequently between August 26th and September 26th, and from October 5th to the 12th, sometimes on consecutive days and sometimes at longer intervals, it must not be assumed that this bird or that was only on the mud on the dates given.

Snipe (*Capella gallinago*), Common Sandpipers (*Tringa hypoleucos*) and Lapwings (*Vanellus vanellus*) were always to be seen, but the numbers varied, and there were no Common Sandpipers after October 8th. On August 30th, and again on September 2nd, there was in a flock of Lapwings, some two hundred strong, an abnormally coloured bird. Its legs and bill were pinkish. Of the pigments that go to make up the complex blacks, browns and greens of the normal variegated coloration, buff alone persisted, and so far as could be seen the feathers were not glossy. The result was a bird in which all the coloured areas, including the under tail-coverts, were uniformly sandy-buff. Dunlins (*Calidris alpina*) and Ringed Plovers (*Charadrius hiaticula*), often together, were about all through September. On the 5th there were a score of Ringed Plovers and half as many Dunlins; but whilst no Ringed Plover was seen after October 8th there were three Dunlins on November 3rd and one on the 9th. Until October 8th there were always one or two Green Sandpipers (*Tringa ochropus*), three from September 5th to 12th. On September 5th and for a week thereafter there were five Curlew-Sandpipers (*Calidris testacea*), birds of the year, but on the 16th

only one. On that day, however, there was an adult—the only one I have seen at Tring in the twenty-three years that I have known the reservoirs—which still retained much of the russet body-colour and the barred upper tail-coverts of summer. The young bird manifested a strong antipathy to it, and again and again during the afternoon made it give place, chasing it on the mud with lowered head or following it closely on the wing. Neither was to be seen on the 17th. There were three young birds, with a Dunlin, on October 8th. A Little Stint (*Calidris minuta*), which was with the five Curlew-Sandpipers on September 7th and again on the 9th, was not seen afterwards. A Ruff and a Reeve (*Philomachus pugnax*) were together on August 30th, but the Ruff only was seen on September 5th and 12th. Another Ruff, distinguished by its olive-green legs, was seen on September 21st.

There were three Greenshanks (*Tringa nebularia*) on August 30th, and one or two until September 26th. The Greenshank is an adept at catching fish. I often saw one or other of the birds making short, quick rushes, with neck outstretched and mandibles open and submerged, in the shallow water, the fishes—fry some inch and three-quarters long—fleeing in a shoal before it and leaping from the water as they do to escape the dash of a pike. On one occasion six were secured and eaten within a minute.

On September 22nd and 23rd I saw a Spotted Redshank (*Tringa erythropus*), but under circumstances that made identification impossible. On the 25th, however, for a couple of hours I watched it feeding, at such close quarters as to be able to make out clearly the white-spotted upper-parts, the convergent white eye-stripes, the long bill, orange-red legs and other diagnostic features, and in flight the absence of white on the wings emphasized the conspicuous white rump. When flushed, it always uttered a cry *tchuet, tchuet*, reminiscent of, but rather harder and shorter than, the *chee weet* of a Greenshank. This cry functions apparently as an alarm-note, and not a call-note as I suggested in the *Practical Handbook*.

A single Common Redshank (*Tringa totanus*) on October 7th was the only one seen. On September 12th and frequently for a week afterwards a Wood-Sandpiper (*Tringa glareola*) was feeding in a muddy creek, always in the same place and always aloof from the Green and Common Sandpipers that were feeding in the vicinity. Unlike the Green Sandpipers, it was very tame and permitted a close approach, but when it was forced to fly it went off with a triple cry, *giff, giff, giff*.

DOUBLE-BROODING OF THE NIGHTJAR.

BY

DAVID L LACK.

In *A Practical Handbook of British Birds* (Vol. 2, p. 14) Mr. Jourdain states that the Nightjar (*Caprimulgus e. europæus*) is undoubtedly sometimes double-brooded. Most earlier works said that the bird was never double-brooded, and only reared two broods if the first had been destroyed. My own observations indicate that the bird not occasionally, but normally, rears two broods during the summer.

In 1926, I visited almost daily a Nightjar's nest on a heath near Holt, Norfolk. The eggs hatched on July 6th and 7th, and on visits to the young previous to July 17th, the female was always brooding. On and after this, the male was invariably present, and I never again saw a female at the nest. As the male Nightjar is usually stated to brood only occasionally, and here did so continuously for a week, I concluded this conduct to be abnormal.

However, the same thing occurred at all Nightjar's nests I watched in which the eggs hatched in June, although, with the above exception, it did not occur at those hatching in July and early August. I give a table of the earlier nests, including two in 1929, kindly watched by my brother, C. C. Lack. At these, through illness, he missed the dates of hatching, but returned before the females had left off brooding.

The nests in question, all near Holt, were visited about every two days, from the date of finding until the young were about three weeks old. I made daily notes on the development of the young at several nests, and so, when a nest was found after the young had hatched, I was able to estimate their age fairly accurately. Where only approximate, however, the date is prefixed by a "*c.*"

Nest found.	2nd egg hatched.	Male first brooded.	Age of 2nd chick when male first brooded.
(1) 2.6.29	Not observed	25.6	10–14 days
(2) 3.6.29	Not observed	1.7	10–14 days
(3) 14.6.28	22.6	5.7	13 days
(4) 11.7.27	*c.* 24.6	(Already brooding 11.7, 17 days old)	when young
(5) 1.7.28	*c.* 24.6	7.7	13 days
(6) 25.6.28	1.7	14.7	13 days
(7) 27.6.26	7.7	17.7	10 days

In addition to nests (1) to (7), seven other nests were visited every two days at which the males never appeared. The eggs in these nests hatched in July and early August.

The only tenable reason why the female Nightjar should leave the further brooding of the half-fledged young to the male seems to be that she can rear a second brood at once. Otherwise, why should it occur at all of the earlier, but none of the later nests? Two broods are apparently necessary to maintain the numbers of the species, and the need to commence a second before the first is fully fledged is obvious. The bird stays with us only four months of the year, and further, the young remain under parental supervision longer than most birds. If the female stayed with the first brood the whole of this period, it would not leave sufficient time for the safe rearing of two broods.

Nests (1) to (6) in the table are typical first broods, where the male took over brooding when the younger chick was about thirteen days old. Nest (7) was so late that it had probably followed a destroyed attempt. However, on my theory, a second brood nevertheless followed, and it is interesting that the male brooded when the young were only ten days' old, earlier than the normal time and indicating a need for hurry. The other seven nests observed were presumably second broods themselves, where, of course, there was no need for the males to relieve their mates.

Further, only 30 yards from nest (2), which the female left on July 1st, my brother found a nest with two eggs on July 7th. This was presumably the second brood, but it was unfortunately robbed before the eggs hatched. Hence, it was impossible to see if the first egg was laid about July 1st, which would have strengthened this supposition. However, on July 5th, 1929, the day that the male was first present at nest (3), I found, about 100 yards away, a female with her first egg, the second being laid next day. Although these nests were rather far apart, it would be a very unlikely coincidence if they did not belong to the same pair.

Having formulated the double-brood theory, I turned to the literature on the subject. The statement in the *Practical Handbook* that the bird is undoubtedly sometimes double-brooded, was rendered probable by the large number of records of late nests (see *Brit. B.*, Vol. VIII., p. 117) and supported by at least three instances (*id.*, Vol. II., p. 244, quoted from *Journ. f. Orn.*, Jan., 1909, and *Brit. B.*, Vol. IX., p. 155 and Vol. XXI., p. 260).

The first reference is to the observations of Dr. O. Heinroth on a pair of Nightjar which bred in captivity. When the younger chick of the first brood was thirteen days old, the female laid the first egg of a second brood, and, after this, the

male undertook the brooding of the young during the day. On reading the original account recently, I found that Dr. Heinroth himself said that, as the young were left by the hen before they were full-fledged, two broods were probably normal, and not merely due to captivity.*

The second reference states that on August 2nd, 1915, Mr. E. M. Imrie flushed a hen Nightjar from two eggs, and, a yard away, found a male brooding young not quite in full feather; obviously two broods of the same pair.

Thirdly, Mr. H. G. Attlee records finding, on July 16th, 1920, a female brooding a growing chick and an egg, and on July 19th another egg was in the nest. Conditions were evidently exceptional here. The two eggs were probably those of a second brood, but perhaps the male had died after the second fertilisation, and hence the female was forced to care for both broods.

Certainly, the two broods are normally not nearly so close together as in these two last records. If they were, many more such examples would be on record. There were no nests within 15 yards of any I observed, while in the two cases of nests which probably belonged to the same pair, the distances apart were 30 and 100 yards. Finally, Dr. Heinroth found that his captive hen Nightjar, while incubating her second laying, was considerably disturbed by the sight of her first brood, which was forced to be near owing to the limits of the room. On the first day, the young even tried to creep under her as she incubated, and it was later found necessary to partition them off during the day. This strongly indicates that the two broods are normally not close together.

The males at the various nests brooded for five, six or seven days, after which the young were unattended during the day, though they still fed with the adult in the evening when strong on the wing. Perhaps, the two broods join up when fully fledged, and migrate together, as small parties are often seen near the coast in autumn.

* In his new book, *Vögel Mitteleuropas*, Dr. Heinroth recounts the above case, and states that field observations organised on lines indicated by it now show the Nightjar is normally double-brooded. No actual details of these observations, nor reference to their having appeared in any Journal are given.

This statement was only seen just after this account had been written.

SOME BREEDING-HABITS OF THE GOOSANDER.

BY

AUDREY SETON GORDON.

On April 14th, 1929, a nest with twelve eggs of the Goosander (*Mergus m. merganser*) was found in Inverness-shire in a hollow alder tree which had recently been charred and killed by a forest fire.

The tree was visited on May 9th and the duck left the nest; the eggs were not hatched. On May 13th I went into a hide which we had erected near the nest on the previous visit—the duck went off the nest—but did not return though she circled round many times. On May 14th I visited the tree and the duck flew off before I got near it. Two of the eggs were chipped.

On May 15th I went to the tree and managed to put up the hide and get in to it without the duck seeing me. After two hours my companion came at a signal from me and put the duck off, as I was anxious to know if the eggs were hatched, and also to see the duck go on to the nest. We found that all the eggs were chipped. The duck circled round many times, gradually getting lower. Finally, she made several circles just at the height of the entrance hole, namely, four feet from the ground, and then shot into the nest at a tremendous speed—breaking it by spreading her tail fanwise over the edge of the hole.

On May 16th, just twenty-four hours later, I returned and found, after putting the duck off, all twelve ducklings hatched and dry. The duck returned after I had been in the hide half an hour and shot into the hole as before. I waited four hours but nothing happened.

May 17th I reached the tree at 7 a.m., twelve hours after leaving it. The duck went off and I handled some of the ducklings, but they all began to leap out. The nest was 18 inches below the entrance hole used by the duck, but the inside wall sloped slightly outwards. On the other side of the tree were three smaller holes, vertically about 14 inches from the bottom of the nest with ledges on the outside. My disturbance stimulated the ducklings and they were able without effort to jump vertically up to these holes or to jump on to the sloping side of the tree and hold on and scramble up the side and out at the duck's hole. When on the outside edge they took great jumps and landed 2–3 yards from the tree, calling loudly all the time. With some difficulty I replaced them all and quietened them and blocked all the

holes except the duck's entrance. The duck returned twenty minutes after I got into the hide. After two hours' complete quiet in the nest, I crept out and poked away the moss I had put to block the holes. Unfortunately, on my way back to the hide, the duck put her head out and saw me and flew off. She did not return for two hours. When she returned, she

grunted a lot and seemed to be moving about in the hole, but I could hear no sound from the ducklings. They had now been hatched and dry for probably over thirty hours. Finally, after being in the hide seven hours I had to give up hoping to see the ducklings leave of themselves. The duck came off and immediately the ducklings came hopping out, calling loudly. I observed that their very sharp, curved claws enabled the ducklings to hold on to the sloping sides of the

nesting-hole. When they were all out, the ducklings kept together in a compact band and made directly for a small burn about 40 yards away, over very hummocky ground.

Although the eggs had commenced chipping on May 14th mid-day, by May 17th mid-day the young had not left the nest and probably would not have left it till the early morning of the 18th.

It is clear that the duck does not assist them to leave the nest. During all the six days I was watching I never saw the drake anywhere near.

OBITUARY.

EDWARD BIDWELL.

We much regret to record the death of Mr. Edward Bidwell, which took place in London on November 23rd, 1929, within a few days of his eighty-fourth birthday, he having been born in Norfolk on November 28th, 1845. At the time of his death Mr. Bidwell was a Vice-President and one of the oldest members of the British Ornithologists' Union, to which he was elected in 1880. Up to 1921 he was a regular attendant at the meetings of the B.O. Club, and was well known as particularly interested in the eggs of the Great Auk, specimens of which he exhibited from time to time as well as a series of photographs of most of the known eggs. He assisted Mr. T. Parkin in his pamphlet, *The Great Auk*, which contains a record of the sales of the bird and its eggs.

In 1896 Mr. Bidwell organized an exhibit at the B.O.C. of the eggs of the Cuckoo (*Cuculus canorus*) and its fosterers. This comprised 919 Cuckoos' eggs, while the fosterers represented 76 species. At the same time Mr. Bidwell published a list of Western Palæarctic species in the nests of which the Cuckoo's egg had been found (*Bull. B.O.C.*, Vol. V., pp. 32-35), but unfortunately this list lacks any information as to the source of the records. Besides eggs, Mr. Bidwell was interested in the collection of other objects, and was a well-known and respected figure at auction rooms such as Stevens's, and will be much missed in many circles.

NOTES

THE INCUBATION- AND FLEDGING-PERIODS OF SOME BRITISH BIRDS.

THE following data were obtained in Cumberland during 1929:—

	Incubation Period Days.	Fledging Period Days.
Great Tit (*Parus m. newtoni*)	—	21
Common Heron (*Ardea c. cinerea*) ...	23	—
Oystercatcher (*Hæmatopus o. ostralegus*)	—	34
Lesser Black-backed Gull (*Larus f. affinis*)	—	32

R. H. BROWN.

INCUBATION- AND FLEDGING-PERIODS OF WILLOW-WARBLER.

THE following notes were made on the nesting of a pair of Willow-Warblers (*Phylloscopus t. trochilus*) at Dulnain Bridge, Inverness-shire, in 1929. The first twist of grass was made for the nest on May 21st, the first feathers placed as lining of nest on May 23rd, while the first egg was laid early on May 27th. On June 2nd the bird was sitting on seven eggs, and the first chick hatched out on the evening of June 15th, while all had hatched at 11 a.m. on June 16th. The young left the nest on July 2nd. WINIFRED M. ROSS.

LATE BREEDING OF MAGPIES.

MR. T. P. MAY informs me that, on November 12th, 1929, on his farm in Mawgan-in-Pydar, N. Cornwall, he saw a brood of seven young Magpies (*Pica p. pica*) in the company of both parents. The fledglings could only flutter for a few yards, and must have left the nest not more than two days previously. Their tails were about two inches long.

As Mr. May makes it a regular yearly routine to destroy the nest of every Magpie found on his farm, this record appears to afford an example of the tenacity of this species to reproduce. B. H. RYVES.

NUMBER OF YOUNG IN NESTS OF SWALLOW AND MARTIN IN SOMERSET.

IN June and July, 1929, I carried out a census of Swallows (*Hirundo r. rustica*) and Martins (*Delichon u. urbica*) over an

area of four square miles near Bruton, Somerset. In all, there were 156 nests—one nest per 16.41 acres—of which 52 were Swallows and 104 were Martins.

The following data concerning the numbers per brood may be of interest. The figures were obtained in a five-mile radius of Bruton, and refer only to nestlings of not less than a week old :—

	6	5	4	3	2	1	Total examined.	Average.
Swallow ...	2	20	10	6	—	—	38	4.48
Martin ...	—	—	10	11	5	1	27	3.1

P. A. D. HOLLOM.

EARLY NESTING OF KESTREL.

ON April 4th, 1929, I found a Kestrel (*Falco t. tinnunculus*) sitting on five eggs in an old nest of Hooded Crow in a Scots pine growing on the outskirts of a swamp in co. Tyrone. The eggs were slightly incubated, and it is evident that some of them must have been laid in March. In a very long experience, I have never known of a Kestrel having eggs in this country so early in the year. March was an exceptionally fine and mild month this year, and this fact may have influenced the laying of some of our resident birds. C. V. STONEY.

RED-NECKED GREBE IN ANGLESEY.

PROFESSOR KENNEDY ORTON tells me that there were three Red-necked Grebe (*Podiceps griseigena*) in the Menai Straits on October 31st, 1929, "very black and white in their winter plumage, but with some of the crest still obvious, giving the head a flat 'mortar-board' appearance." He adds: "This is not the first time I have seen this species on the Straits in winter. I have noted them in my diary each year since 1925. Last year one was shot and brought to the College, and I examined and measured it up to make sure of my diagnosis." H. E. FORREST.

RED-NECKED AND GREY PHALAROPES IN ANGLESEY.

I AM indebted to Professor Kennedy Orton for records of both species of Phalarope in Anglesey. On October 17th, 1926, he watched a Grey Phalarope (*Phalaropus fulicarius*) on a certain llyn in Anglesey. On October 17th, 1929, he watched a Red-necked Phalarope (*P. lobatus*) at almost the same spot on the same llyn. H. E. FORREST.

SABINE'S GULL IN KENT.

THROUGHOUT December, 1929, a bird, which I identified as an immature Sabine's Gull (*Xema sabini*), has been present in Dover Harbour.

The following description was made on the spot, at intervals between watching the bird through glasses at thirty yards' range, while it was resting on the beach among Black-headed Gulls. Bill, black; breast, dark; whitish forehead, smoke-grey crown, nape and back, white tail with black edging; white belly, breast and throat (except for a half-collar formed by the dark grey coming forward from the mantle); wings dark grey to black with white secondaries, extremely conspicuous in flight. The bird was slightly but distinctly smaller than the Black-headed Gulls with which it associated.

How long the bird had been at Dover I cannot say, for I arrived on December 5th and saw it on the following day. The 5th, however, was the day on which a series of violent gales began. H. B. GARLAND.

SABINE'S GULL IN CUMBERLAND.

ON December 9th, 1929, W. Storey, the Solway wildfowler, when searching for a goose he had shot on Long Newton Marsh, found a gull lying dead. This proved to be a female Sabine's Gull (*Xema sabini*), and is now in the Tullie House Museum, Carlisle.

There were severe gales from December 6th to 8th, and the bird had probably died from exhaustion and starvation, its stomach being empty.

This is the third recorded example of the species from the Cumberland side of the Solway. T. L. JOHNSTON.

LESSER BLACK-BACKED GULLS IN GLAMORGAN.

EVER since we began in 1921 a series of systematic weekly visits to the Llanishen Reservoirs, near Cardiff, we have kept a careful watch upon the movements of adult Lesser Black-backed Gulls (*Larus fuscus*), which, in company of hundreds of gulls of other species, visit the reservoirs to bathe.

There are two or three breeding stations of the British race (*affinis*) within reasonable distance; a fairly large one out in the Bristol Channel on Steep Holm (Somerset), some eight or nine miles away, and one or two small ones in Gower (Glamorgan).

The autumn movement begins towards the end of July and reaches its climax in the middle of September, after

which the birds are seen in diminishing numbers until the end of October, although stragglers occasionally occur in the first week of November. This migration is far more apparent with us than the return in spring, although in 1922 only five birds were seen in the three months August 1st to October 30th; on the other hand they were particularly numerous this year (1929), for 182 were counted in the same period, which is more than double the highest previously recorded—eighty-four in 1927. The most that have been seen together at the same time is forty, and this number was reached twice in September, 1929, when our weekly visits yielded a total of ninety-five.

It would be interesting to know if this species has been noted in unusual numbers in other parts of the country.

Although during the four winter months, November to February, inclusive, no less than twenty birds have been seen in the eight years covered by our observations, only two of them were recorded within the period of six weeks which lies between November 15th and December 31st, and as both occurred in 1928, one on November 18th and the other on December 2nd, it is quite possible that the same bird was seen on each occasion.

It is usually the first week in March before the return movement begins, and it reaches its height in the middle of April; but in 1928 only one bird was noted during these two months. It is rarely, however, that more than twelve to twenty birds are seen, and 1929 again creates a record with thirty-two.

From the beginning we have been constantly upon the look-out for birds of the Scandinavian race (*fuscus*), but it soon became obvious that to determine the shade of colour of the mantle with perfect confidence required the very best conditions of lighting and observation. On a dull or misty day, and at certain angles of lighting, the mantle of *affinis* can appear almost as black as that of *fuscus*, unless the bird is very close at hand. One or two of the birds seen in January were noted as "probably *fuscus*," and the ones recorded on January 8th, 1928, and January 27th, 1929, were almost undoubtedly of this race, but we do not feel justified in recording them as such because the lighting conditions were not ideal.

There was, however, no doubt about the bird we saw on January 20th, 1929, which was watched for ten minutes swimming broadside on at a distance of about forty yards

with the sun shining full upon it. The very dark black back, with no trace of grey in it, and the apparently unstreaked head and neck, together with its size, which could be accurately judged by comparing it with the Herring-Gulls (*Larus a. argentatus*) it was consorting with, made identification certain. This, so far as we are aware, is the first specimen of the Scandinavian race to be recorded from Glamorgan.

We have also noted that although the birds which appeared in February and sometimes early March were certainly not of the Scandinavian race, yet they were appreciably darker than the breeding birds we saw later in the year, in May and June, when we visited a colony. The bird, or birds, seen on November 18th and December 2nd, 1928, also had a grey-black mantle of a shade more nearly approaching *affinis* than *fuscus*. Three birds seen together on November 10th, 1929, were interesting, for while one of them was certainly *affinis*, the other two were noticeably darker, and yet they were not dark enough to be *fuscus*.

We were inclined to ascribe this darker shade to a difference in the appearance of the birds after the moult, but upon consulting Mr. H. F. Witherby, he suggests a much more interesting possibility. He writes "there is not really *very much* variation in the pale colour of the British bird. But birds from Denmark and south Norway appear to be intermediate, and, I believe, could be confused in the field, though I have not yet had an opportunity of examining a series from this region. They are described under the name *intermedius* by Schiöler. Therefore, there must always be a certain amount of doubt about apparent British birds seen in the middle of winter. Of course, a few of our birds might easily stay over, but, on the other hand, they might be examples of these south Norway or Denmark breeding birds."

In the light of this information, there seems to be quite a possibility that some of the birds we have seen in the winter and could not be sure of, and also in February and early March, all apparently darker than *affinis* but not dark enough for *fuscus*, were of this intermediate form.

GEOFFREY C. S. INGRAM.
H. MORREY SALMON.

LITTLE AUKS IN MIDDLESEX.

ON December 31st, 1929, after the heavy gales, I found two Little Auks (*Alle alle*) at Staines which did not show the confiding disposition of the one reported in November, 1928, by Mr. Donald Gunn (*antea*, Vol. XXII, p. 193), or any of the

exhaustion commonly seen in storm-driven birds. On the two occasions on which I was able to get my telescope upon them at a moderate distance, they dived forthwith and, on coming to the surface, immediately took wing for a long flight. F. R. FINCH.

STARLINGS NESTING IN FORK OF TREE.—Mr. H. W. Robinson sends us a note of a remarkable nest of a Starling (*Sturnus v. vulgaris*) in an "ornamental" conifer at Windermere in 1929. This nest, in which a brood was reared, was placed on a horizontal bough about 12 feet from the ground, and was a very large structure built of rushes (some nearly a yard long), and was partly lined with wing-feathers of poultry and small feathers of guinea fowl. A previous nest, also very large and made of rushes, was built by the same pair of Starlings in a similar tree, but was abandoned as the birds failed to make a firm bottom to it. In both cases a large amount of material was dropped below the nesting sites.

CHIFFCHAFF IN DORSET IN JANUARY.—Mr. C. Palmer sends us a Chiffchaff (*Phylloscopus c. collybita*) which was shot by a boy on January 7th, 1930, at Poyntington, near Sherborne.

BLACK REDSTART IN WINTER IN ISLE OF MAN.—Colonel H. W. Madoc informs us that he and his son saw two Black Redstarts (*Phœnicurus o. gibraltariensis*) at Douglas on December 17th, 1929.

PEREGRINES FEEDING ON ROOKS.—Although the Peregrine (*Falco p. peregrinus*) is known to prey on Rooks (*Corvus f. frugilegus*) in certain localities (*vide Pract. Handbook*, Vol. II., p. 111), we may draw attention to an observation by Mr. R. Howarth at feeding places near an eyrie in the Isle of Man, where remains of prey examined consisted of those of twenty-seven Rooks, three Pigeons, one Moorhen and one Redshank (*Nat.*, 1929, p. 394). In this connexion it may be pointed out that Captain C. W. R. Knight in a recent article on "Rook Hawking with a Tiercel" (*Field*, 7.XII.29, p. 863) is far from correct in his statement that "Rooks are not the natural quarry of any bird of prey." In certain districts the Rook may be said to be the normal prey of the Peregrine.

LEACH'S FORK-TAILED AND STORM-PETRELS INLAND.—An unusual number of Storm-Petrels (*Hydrobates pelagicus*) and Leach's Fork-tailed Petrels (*Oceanodroma l. leucorrhoa*) have

been recently reported as having been picked up dead or dying on land. We have culled the following from various sources, and to make the reports as complete as possible shall be glad to have details of any others known to our readers. The frequent gales were no doubt responsible for the appearance of these birds inland. In November, gales were reported on the 5th, 8th, 10th to 12th, 15th, 16th, 18th to 20th, 22nd, 23rd, 25th to 28th; in December from 2nd to 13th (5th, 7th, 8th and 9th from 77 to 110 miles per hour), 19th to 26th, 28th to 30th (on 29th from 76 to 83 miles per hour); in January 2nd to 5th (on 2nd from 77 to 91 miles per hour) 7th, 10th to 13th (on 11th, 70; 12th, 77; 13th, 102 miles per hour):—

STORM-PETREL.

On December 8th, 1929, Mr. N. B. Kinnear informs us, one was picked up at Holywell, Flintshire, and sent to the Natural History Museum.

On December 8th, Mr. Edwin Hollis informs us, one was picked up alive at Grendon Underwood, Buckinghamshire, but the bird died and is now in the County Museum.

On December 8th one was picked up in a meadow at Marlborough, Wiltshire (*Field*, 28-12-29, p. 993).

On December 8th, Mr. B. W. Tucker informs us, one was picked up at Uphill, Somersetshire, and reported to him by Dr. F. A. Bruton.

On December 11th, one was found in Exeter Road, Weston-super-Mare, as we learn from the sources.

On December 11th one flew into a bedroom at Babbacombe, Torquay, and died the next day. This bird, as well as the Marlborough one, was taken to the Natural History Museum (see also *Field, loc. cit.*).

On December 11th, Mr. B. W. Tucker informs us, one was picked up near the G.W.R. Station at Oxford, and is now in the University Museum.

On December 20th one was found dead at Pyrton, south Oxfordshire, and was reported by Major H. D. Hammersley (*Times*, 6-1-30).

On December 30th, as we are informed by Mr. J. R. B. Masefield, one was picked up exhausted near Fenton, north Staffordshire, and died soon after. This bird was handed to the curator of the Hanley Field Club Museum.

LEACH'S FORK-TAILED PETREL.

On November 26th, 1929, one was picked up dead under a tree at Kington, Herefordshire (F. C. Morgan, *Field*, 21-12-29, p. 949).

On December 1st, Mr. N. B. Kinnear informs us, one was found at Pickleton, Leicestershire, and was received at the Natural History Museum.

On December 6th one was found in the talons of a Sparrow-Hawk (*Accipiter nisus*) shot at Ryston Hall, Downham Market, Norfolk, and was sent to the Editor of the *Field* for identification. We know of no previous record of a Petrel as prey of a Sparrow-Hawk (*Field*, 8-12-29, p. 993).

On December 14th, Mr. Edwin Hollis informs us, one was picked up near Buckingham, and is now in the County Museum.

BLACK-TAILED GODWIT IN BUCKINGHAMSHIRE.—CORRECTION.—In Mr. H. A. Littlejohn's note on this subject (*antea* p. 166) the bird seen was at the Marsworth Reservoir, which is in *Hertfordshire* and not in Buckinghamshire.

GLAUCOUS GULL IN SEPTEMBER IN FARNE ISLANDS.—Mr. J. B. Watson informs us that whilst on a visit to the Farne Isles on September 18th, 1929, he saw an adult Glaucous Gull (*Larus hyperboreus*) amongst the Lesser Black-backed Gulls on a low-lying rocky isle very near to which he was passing.

LETTERS.

EXTRAORDINARY DISPLAY BY A PAIR OF HEDGE-SPARROWS.

To the Editors of BRITISH BIRDS.

SIRS,—With reference to the letters on the above subject (*antea* p. 231, etc.), I venture to send you an extract from my diary of April 4th, 1928, with reference to the actions of two Hedge-Sparrows :—

"The male first started running round and round the hen, who after a bit, started shaking and drooping her wings and cocking her tail straight up. Then twice the male darted in and gave her a peck at the anus, when the hen at once began to shiver her wings more violently than ever. Then suddenly the male darted at her sideways —not mounting at all—and they came together in a flash. So quick was the movement that I could scarcely follow it. Coition must have taken place, for both birds, apparently satisfied, separated and went on feeding. A very curious performance."

A. H. MEIKLEJOHN.

MALLARD KILLING HOUSE-SPARROW.

To the Editors of BRITISH BIRDS.

SIRS,—With reference to Mr. R. J. Buxton's note on this subject (*antea* pp. 222-3), I witnessed a similar incident on the Serpentine, Hyde Park, on August 29th, 1928. My attention was drawn to a scuffle a foot or two from the bank, and I saw a Mallard with a House-Sparrow in its beak repeatedly dip the latter in the water until it ceased to struggle on being raised again into the air. The Mallard then released its hold, and did not touch the House-Sparrow again. Unfortunately, I did not see how the Mallard obtained possession of its victim, but a party of House-Sparrows had been just previously feeding by the bank, and so I assume it was in the same manner as recorded by Mr. Buxton, for the bird was gripped in a similar way.

DAVID L. LACK.

REVIEWS.

Spitsbergen Papers, Vol. II. *Scientific Results of the Second and Third Oxford University Expeditions to Spitsbergen in* 1923 *and* 1924. Oxford University Press. 30s. net.

THIS volume is on the same plan as the first (see *B.B.*, XIX, p. 181), papers contributed to various publications being reprinted as they originally appeared and bound together.

The 1923 expedition was called The Merton College (Oxford) Arctic Expedition, and was organized and led by Mr. George Binney. This expedition carried out exploration in northern Spitsbergen and the coasts of North-East Land, and accomplished a traverse of the New Friesland ice-cap. The ornithological results were described by Dr. T. G. Longstaff in *The Ibis*, and are here reprinted.

The third expedition, which was called the Oxford University Arctic Expedition, 1924, and was also led by Mr. Binney, was mainly an exploring one, and was equipped with two ships and a seaplane. There were three sledge parties, one of which accomplished the feat of crossing North-East Land. The bird work done was described in *The Ibis* by Mr. F. A. Montague, in whose paper (here reprinted) special attention is given to the birds occurring in North-East Land. Another paper by Mr. Montague appearing here is on the Summer Habits of the Northern Eider, which was originally published in our own pages.

A paper on the Ecology of Spitsbergen by Messrs. V. S. Summerhayes and C. S. Elton, although mainly botanical, contains items of considerable interest to the ornithologist. We may briefly indicate some of the most striking points :—" The Ivory-Gull is to the Polar bear what the jackal is to the African lion : it subsists almost entirely on the carcases of seals left by bears " ; the eggs of Eiders are sucked by Arctic Skuas, but the Arctic Tern, owing to its fierce nature, is immune ; the Brent Goose usually nests on islands free from the Arctic fox, but the Pink-footed Goose can drive off the foxes ; the manuring of birds has a very considerable effect on the vegetation, and this again influences the lower forms of animal life ; in the case of the Arctic Tern, its manuring produces grassy patches beloved of the Brent Goose, but the Tern itself avoids turf for nesting and is thus gradually depriving itself of breeding sites.

The London Naturalist for 1928.

THIS volume contains some interesting ornithological matter. In his Presidential Address on " The Thames as a Bird-Migration Route," Mr. W. E. Glegg gives evidence to show that there is some concentration of emigrants along the Thames valley, and he sums up by suggesting that it forms a minor migration " route " for certain regular migrants, and that it is also used fortuitously by wanderers. In " Ornithological Records of the London Area " we have a list of birds which have been observed to occur or to nest in the Society's area. This area is taken arbitrarily as that enclosed by a circle with a radius of twenty miles from St. Paul's Cathedral. This area is no doubt a very convenient one for the members to work, but, including as it does parts of six counties, a very clumsy one for the purpose of records. The difficulty has been got over to some extent by splitting it into divisions, which, however, have a botanical rather than an ornithological basis. The list itself is mostly founded on observations made by the Society's members and will no doubt be added to and made more complete in the future. The Ornithological Report for the year contains a number of interesting notes, some of which have already appeared in our pages.

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BRITISH MUSEUM
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THE "BRITISH BIRDS" MARKING SCHEME.*

PROGRESS FOR 1929.

BY

H. F. WITHERBY.

In 1929, the twenty-first year of our Ringing Scheme, we have achieved another record in numbers and have reached a total of over a quarter of a million birds ringed since the inauguration of the Scheme in 1909, as will be seen by the following totals :—

Number of Birds Ringed.

In 1929 25,243

In 1909	...	2,171	In 1919	...	3,578
,, 1910	...	7,910	,, 1920	...	5,276
,, 1911	...	10,416	,, 1921	...	8,997
,, 1912	...	11,483	,, 1922	...	9,289
,, 1913	...	14,843	,, 1923	...	12,866
,, 1914	...	13,024	,, 1924	...	18,189
,, 1915	...	7,767	,, 1925	...	18,233
,, 1916	...	7,107	,, 1926	...	23,432
,, 1917	...	6,926	,, 1927	...	21,625
,, 1918	...	5,937	,, 1928	...	24,479

Grand Total 258,791

For these results our band of ringers is to be heartily congratulated, and I am glad to be able to say that not only has the number of birds ringed increased, but also the number of readers taking an active part in putting on the rings. Dr. Moon once again heads the list, and though his total is smaller than last year it is still a remarkable one, being well

* For previous Reports see Vol. III., pp. 179-182, for 1909; Vol. IV., pp. 204-207, for 1910; Vol. V., pp. 158-162, for 1911; Vol. VI., pp. 177-183, for 1912; Vol. VII., pp. 190-195, for 1913; Vol. VIII., pp. 161-168, for 1914; Vol. IX., pp. 222-229, for 1915; Vol. X., pp. 150-156, for 1916; Vol. XI., pp. 272-276, for 1917; Vol. XIII., pp. 96-100, for 1918; Vol. XIII., pp. 237-240, for 1919; Vol. XIV., pp. 203-207, for 1920; Vol. XV., pp. 232-238, for 1921; Vol. XVI., pp. 277-281, for 1922; Vol. XVII., pp. 231-235, for 1923; Vol. XVIII., pp. 260-265, for 1924; Vol. XIX., pp. 275-280, for 1925; Vol. XX., pp. 236-241, for 1926; Vol. XXI., pp. 212-219; Vol. XXII., pp. 253-258.

over three thousand. It is made up of fifty-two species, the largest numbers being Lapwing (765), Song-Thrush (518), Blackbird (376), Willow-Warbler (329) and Sand-Martin (101). Mr. Boyd, as before, comes next, his total being well over two thousand, and an increase over last year. Fifty-five species are included, the largest numbers being Swallow (391), Starling (347), Greenfinch (236), Sandwich Tern (148) and Tree-Sparrow (139). The next four ringers in the list are very near together. Lord Scone has ringed forty-two species, of which the largest numbers are Woodcock (232), Lapwing (198), Starling (179) and Song-Thrush (144). The members of the London Natural History Society have a list of forty-five species, including Swallow (309), Martin (220), Starling (173), Blackbird (131) and Song-Thrush (105). Mr. Mayall, who comes next, has ringed thirty-three species, of which Swallow (231), Martin (212) and Song-Thrush (129) are the most numerous; while Mr. Robinson's total is almost entirely made up of six species, viz. Common Tern (460), Sandwich Tern (399), Lesser Black-backed Gull (199), Puffin (80), Swallow (66) and Woodcock (21).

In going through the rest of the lists of birds ringed, I have noted the following items as being unusual:—Mr. J. Bartholomew, 33 Wood-Pigeons; Mr. R. H. Brown, 28 Herons, 12 Sparrow-Hawks, 8 Buzzards, 5 Peregrines, 5 Kestrels; Mr. P. K. Chance, 30 Swifts; Lord David Crighton-Stuart, 96 Cormorants; St. Edmund's School, 56 Jackdaws, 40 Rooks; Mr. R. M. Garnett, 189 Sandwich Terns; Oxford Ornithological Society, 33 Herons; Mr. C. W. G. Paulson, 77 adult Starlings and 24 young; Col. G. P. Pollitt, 68 Herons; Mr. M. Portal, 48 Mallard, 15 Teal; Mr. B. B. Roberts, 100 Manx Shearwaters; Rugby School, 70 Mallard; Miss E. C. Sharp, 145 Shags; and Dr. J. N. D. Smith, 240 Starlings.

Although the number of birds ringed is very satisfactory, it must be remembered that the test of the usefulness of the scheme rests entirely on the number and value of the recoveries. The number of recoveries during the year has been up to the average, and many of special interest have been reported, but I feel sure that the proportion and value of recoveries could be increased if ringers would have more regard for this than merely to make up a large number of birds ringed.

We have, for instance, ringed this year 142 Sky-Larks, 196 Spotted Flycatchers, 810 Willow-Warblers, 251 White-

throats, 137 Wrens and 524 Sand-Martins. Of each of these species we have ringed in all over two thousand birds (of some far more) without really adequate return in numbers recovered, and in most cases with no great interest in the few recoveries reported. There are a good many other species with a small percentage of returns which might be mentioned, but of these some, such as the Tree-Pipit, Whinchat, Redstart and Puffin, have perhaps not been ringed in large enough numbers to judge finally, and others, such as the Linnet, Swallow and Sandwich Tern, in which the small numbers of returns for the large numbers ringed have been of such value as to have made the effort well worth while.

Now that our Ringing Scheme has come of age and has passed the quarter of a million mark it is advisable for us to take stock, and be guided in our choice of what species to ring by the interest and number of probable recoveries, rather than by the number of birds available to ring. I have this year altered the table of birds ringed so as to include recoveries of most, but too great attention should not be paid to the percentage of recoveries of those species of which only comparatively few birds have been ringed. I have already indicated that certain species yielding a low percentage of recoveries have nevertheless given us valuable knowledge. Further, it should be noted that some rather high percentages, such as in Starling, Yellow Bunting, Redbreast, Hedge-Sparrow and Swift have been largely due to trapping and re-trapping. Conversely, some species with low percentages of recoveries might be increased by trapping.

Although the number of ringers who have taken up various methods of trapping shows a satisfactory increase, the proportion of birds ringed in this way is still much too small compared with the number ringed as nestlings. If ringers would cut down the number of nestlings ringed of those species showing poor returns and devote the time saved to trapping, I feel sure we should get better results, although the total number ringed would obviously be smaller. Trapping to be successful requires practice, experience and experiment, and each ringer should, if possible, have some special object in view. Those who have not done any trapping hitherto should consult Mr. F. C. Lincoln's article on "Traps for Bird Ringing" (Vol. XXI, pp. 134-150, November, 1927).

Most ringers no doubt have to choose species and methods most suitable to their time and surroundings, but it may not be out of place to give here a few examples.

The Starling has already been ringed in large numbers with success, but it would be well worth while to make a still greater effort to ring still larger numbers, both young and adult, in and out of the breeding-season. Trapping in the breeding-season is more difficult than in the winter but even more important, because it has been less done. When young are in the nest the adults can often be caught and ringed as well as the young, and this, when possible, should never be neglected. There are many questions this might help to solve, *e.g.*: Is it only a rare occurrence for Starlings to have two broods? Is the nesting-site used successively by different pairs? At what age does the bird breed? Does it nest in the locality where it was hatched? It should be possible to ring considerable numbers of Starlings by netting them at certain roosting places, and I hope that some of my readers may have an opportunity of adopting this method which has not yet, I believe, been tried. The Starling's movements and migrations are very complicated, and we continue to accumulate interesting facts bearing on this point. In 1929, birds which were trapped and ringed in preceding winters in this country were reported from Holland, Denmark, Sweden and Poland, the last being especially interesting. Although there is still only one record of a home-bred ringed Starling migrating to the continent, we had in 1929 one reported in winter from Carmarthen, which was ringed as a nestling in Essex, showing a longer journey than appears usual in our British-bred Starlings (*cf.*, Thomson, *Problems of Bird Migration*).

Another important point upon which more knowledge might be gained by ringing is the question why do certain individuals of species which are partial migrants migrate while others are stationary? The Song-Thrush and the Lapwing are notable examples, and although we have ringed very large numbers of these birds, unfortunately almost all these have been ringed as nestlings. Of the Song-Thrush in any case it should be possible to trap many more than we do at present, and I sincerely hope that ringers will use every endeavour to do this.

The ringing of species which do not breed here but are winter immigrants does not progress very fast. Unfortunately, such birds are mostly difficult to trap. More Bramblings have been ringed this year, mainly by Mr. Boyd, while several ringers have contributed to the small, but increased, number of Redwings.

We have had an interesting return of a Ring-Ouzel ringed as a nestling in Dumfriesshire and recovered in Algeria. Previously a Yorkshire bird was reported from Navarra (Vol. XXI, p. 275; XXIII, p. 112), and I hope larger numbers of this species will be ringed.

Hawks, Ducks, and Herons are all no doubt difficult for various reasons to ring in large numbers, but I feel sure that more could be ringed. Of Hawks we have this year an interesting return from Normandy in December of a Kestrel ringed in Buckinghamshire in June, 1928. We have published a number of somewhat surprising returns of Herons, and I am sorry to find a falling off in the number ringed, though I know that the climbing necessary makes the work difficult and laborious. Of ducks we continue to have valuable returns. A Teal from Cumberland has been reported recently from as far as the Gulf of Archangel, while a Wigeon ringed in Kinross in May, 1927, was found near Novgorod, Russia, in September, 1929. Ducks are also difficult birds to ring in large numbers, since even the young can be caught only with difficulty by the time the foot has grown large enough for the right sized ring. But such very valuable results are to be obtained from ringing ducks that the greatest effort should be made to do so. Can any of my readers induce a decoy-owner to help?

Shags and Cormorants were ringed last year in some numbers, and are yielding interesting returns, which may perhaps show that their winter movements are dissimilar. I am sorry that no Gannets have been ringed this year.

Amongst the birds which show a small percentage of recoveries, we have had in 1929 several returns to which I may draw attention. Our eighth and ninth ringed Swallows recovered in South Africa, one being Mr. Thomas's second and the other a first one for Mr. Boyd, have already been fully reported (*antea*, p. 62). Other returns not yet published are: two Meadow-Pipits from Lancashire and Cumberland to the Landes (France); a Tree-Pipit from Cumberland to Portugal; a Whitethroat from Surrey to Portugal; a Garden-Warbler from Cumberland to the Pyrenees; a Whinchat from Yorkshire to Portugal; a Sandwich Tern from Norfolk to Portuguese West Africa, besides those to Angola and Algeria already published (*antea*, p. 124), and a Puffin from Skomer to Arcachon (France), besides the one from Sutherland to Norway already published (*antea*, p. 125). I have already drawn special attention to the remarkable return of the Lapwing from Italy (Vol. XXII, p. 375).

Mention may also be made of three interesting records reported during the year of birds which have been ringed for a number of years, viz.:—Blackbird, ten years; Tufted Duck, fourteen years, and Shag, fourteen years (*antea*, pp. 112, 119, 120).

Attention must be drawn to Dr. A. Landsborough Thomson's article on the results of marking Woodcock (*antea*, pp. 74-92).

The value of ringing for identification purposes in experimental observation was well demonstrated during the year by Mr. R. M. Lockley in his valuable article on the habits of the Manx Shearwater (*antea*, pp. 202-218).

NUMBER OF BIRDS "RINGED."

Dr. H. J. Moon (3281), Mr. A. W. Boyd (2247), Lord Scone (1387), The Lon. Nat. Hist. Soc. (1327), Messrs. A. Mayall (1313), H. W. Robinson (1254), P. E. A. Morshead (911), St. Edmund's School Nat. Hist. Soc. (780), Messrs. R. H. Brown (617), R. M. Garnett (608), Mr. and Mrs. R. O. Blyth (601), Ox. Orn. Soc. (547), Miss F. K. Staunton and Mr. N. T. Walford (491), Lt.-Col. G. P. Pollitt (491), Mr. C. R. Stonor (415), Perths. Nat. Hist. Soc. (381), Miss E. C. Sharp (366), Messrs. J. Bartholomew (333), E. Cohen (316), Mrs. T. E. Hodgkin (314), Messrs. W. and A. B. Duncan (306), Mr. J. F. Thomas (297), Dr. J. N. D. Smith (294), Messrs. W. D. Shaw (283), C. W. Paulson (269), E. F. Wood (230), W. J. Eggeling (227), T. L. Smith (225), J. N. Fletcher (220), W. A. Cadman (219), R. Howarth (208), Clifton College Scientific Soc. (202), Mesrss T. K. Craven (183), B. B. Roberts. (170), Rev. E. U. Savage (166), Sir S. Bilsland (159), Rev. E. Peake (158), Messrs. J. D'eath (158), R. Carlyon Britton (156), T. H. and W. R. Harrisson (153), Miss J. M. Ferrier (128), Messrs. H. Barlow (128), J. R. B. Masefield (126), Dr. F. A. Craine (120), Messrs. J. M. McC. Fisher (119), D. J. Robertson (113), J. Cunningham (111), P. K. Chance (108), H. C. R. Gillman (107), Rugby School (105), Lord David Crichton Stuart (96), Messrs. T. Kerr (88), G. F. M. Swiny (83), J. F. Wynne (82), Mrs. A. Mackenzie (81), Messrs. H. Bamford (79), L. A. Hawkins (78), H. S. Greg (70), W. A. S. Lewis (65), Major M. Portal (63), Messrs. C. F. Archibald (62), A. G. Haworth (55), F. J. Mitchell (55), H. S. Whistler (54), P. Russell (44), Drs. Bedford and Olver (43), Messrs. J. M. Hepburn (43), R. M. Lockley (41), Dr. D. F. Jopson (39), Major W. M. Congreve (35), Messrs. H. S. Gladstone (30), T. Perrin (30), J. C. Corner (29), W. Hughes (29), Dr. N. H. Joy (29), Messrs. J. A. G. Barnes (27), G. B. Westcote (27), Miss Ruth Bickersteth (24), Messrs. E. Blezard (23), J. M. Craster (23), W. R. Philipson (22), Duke of Northumberland (20), and others who have ringed under twenty each.

	NUMBERS OF EACH SPECIES "RINGED."					RECOVERED	
	'09-'26	'27	'28	'29	Total	of those ringed 1909-28	Per-centage
*Crow, Carrion ...	204	46	32	78	360	12	4.2
Rook	733	253	212	274	1472	34	2.8
Jackdaw	522	234	124	162	1042	37	4.2
*Magpie	138	14	26	47	225	7	3.9
Jay	129	25	28	23	205	9	4.9
Starling	12359	1324	1579	2441	17703	707	4.6
Greenfinch ...	5783	680	710	904	8077	156	2.1
*Goldfinch	82	1	20	15	118	2	1.9
Twite	63	5	4	2	74	—	—
Redpoll, Lesser ...	216	26	13	3	258	2	0.8
Linnet	4131	292	304	212	4939	32	0.6
Bullfinch	584	38	30	62	714	7	1.0
Chaffinch	7366	673	858	671	9568	159	1.7
Brambling ...	19	1	6	18	44	—	—
Sparrow, House ...	489	2	19	60	570	11	2.1
Sparrow, Tree ...	518	79	111	152	860	5	0.7
Bunting, Yellow ...	1507	188	183	221	2099	89	4.7
Bunting, Reed ...	668	64	121	44	897	13	1.5
Lark, Sky ...	2265	118	102	142	2627	26	1.0
Pipit, Tree ...	686	98	200	82	1066	3	0.3
Pipit, Meadow ...	1842	112	120	184	2258	26	1.2
Wagtail, Yellow ...	287	15	33	59	394	—	—
Wagtail, Grey ...	301	63	49	35	448	1	0.2
Wagtail, Pied ...	1758	247	333	232	2570	41	1.7
*Creeper, Tree ...	139	16	33	14	202	—	—
Tit, Great ...	944	32	62	54	1092	22	2.1
Tit, Blue	843	33	80	63	1019	15	1.5
Shrike, R.-backed	356	90	46	66	558	—	—
Flycatcher, S. ...	1894	181	259	196	2530	6	0.2
*Flycatcher, Pied ...	212	127	47	23	409	2	0.5
Chiffchaff	375	15	60	44	494	2	0.4
Warbler, Willow ...	4670	573	1165	816	7224	32	0.4
Warbler, Wood ...	647	71	95	34	847	1	0.1
Warbler, Reed ...	416	30	66	78	590	1	0.1
Warbler, Sedge ...	572	26	49	31	678	1	0.1
Warbler, Garden ...	559	21	44	36	660	—	—
Blackcap	345	2	31	40	418	—	—
Whitethroat ...	2048	138	169	251	2606	11	0.4
Whitethroat, L. ...	301	23	8	32	364	—	—
Thrush, Mistle ...	1463	159	234	174	2030	30	1.6
Thrush, Song ...	22704	3200	3265	2354	31523	465	1.5
Redwing	47	—	1	12	60	—	—
Ouzel, Ring ...	216	49	22	15	302	3	1.0
Blackbird	15171	2252	2391	2185	21999	500	2.5
Wheatear	837	108	44	107	1096	24	2.4
Whinchat	816	97	93	109	1115	6	0.5
Stonechat	348	52	43	26	469	3	0.2
Redstart	904	63	91	90	1148	3	0.6
Nightingale ...	202	40	37	38	317	2	0.7
Redbreast ...	7327	746	956	718	9747	422	4.6
Sparrow, Hedge ...	4358	492	538	538	5926	217	4.0
Wren	2420	212	226	137	2995	8	0.2
Dipper	355	76	100	57	588	5	0.9
Swallow	13245	1378	1802	2144	18569	116	0.7

	NUMBERS OF EACH SPECIES "RINGED."					RECOVERED	
	'09-'26	'27	'28	'29	Total	of those ringed 1909-28	Per-centage
Martin	5264	517	647	986	7414	44	2.0
Martin, Sand ...	2260	300	195	524	3279	7	0.6
*Swift	345	51	32	71	499	26	6.0
Nightjar	95	1	6	6	108	—	—
Kingfisher ...	51	16	14	10	91	4	4.9
Wryneck	291	12	10	16	329	5	1.5
Cuckoo	255	32	32	27	346	10	3.1
*Owl, Little ...	133	31	39	25	228	15	7.3
Owl, Long-eared ...	76	8	11	18	113	4	4.2
Owl, Barn ...	149	10	13	15	187	16	9.3
Owl, Tawny ...	273	47	53	29	402	27	7.2
*Merlin	83	13	23	5	124	26	21.8
Kestrel	278	48	49	40	415	39	10.3
*Buzzard	44	11	27	13	95	6	7.3
Hawk, Sparrow ...	165	17	23	40	245	34	16.5
Heron, Common ...	209	97	346	163	815	68	10.4
Sheld-Duck ...	83	4	17	16	120	5	4.8
Mallard	1800	588	311	282	2990	530	19.5
Teal	746	38	26	18	828	88	10.8
Wigeon	122	14	13	1	150	14	9.3
Duck, Tufted ...	70	—	—	—	70	9	12.8
Cormorant ...	594	2	38	187	821	117	18.4
Shag	318	276	74	161	829	75	11.2
Gannet	868	100	97	—	1065	38	3.5
Shearwater, Manx	99	32	5	160	296	1	0.7
Wood-Pigeon ...	899	168	142	132	1341	55	4.5
Dove, Stock ...	175	16	38	13	242	5	2.1
Dove, Turtle ...	253	57	23	34	367	30	9.0
Stone-Curlew ...	24	15	18	3	60	3	5.2
Oystercatcher ...	308	79	45	43	475	15	3.4
Plover, Ringed ...	403	16	42	28	489	5	1.0
Plover, Golden ...	74	7	3	24	108	1	1.0
Lapwing	7592	1694	1827	2183	13296	287	2.5
Sandpiper, C. ...	410	55	17	44	526	2	0.4
Redshank	557	104	94	87	842	35	4.6
Curlew, Common	667	110	132	193	1111	44	4.7
Snipe, Common ...	386	183	95	65	729	45	6.7
Woodcock... ...	846	414	421	313	1994	124	7.3
Tern, Sandwich ...	1683	225	800	765	3473	23	0.8
Tern, Common ...	6680	227	75	696	7687	111	1.5
Tern, Arctic ...	199	10	29	84	322	1	0.4
Tern, Little ...	251	6	16	5	278	2	0.7
Gull, B.-headed ...	11080	54	23	20	12077	527	4.3
Gull, Common ...	679	46	75	101	901	21	2.6
Gull, Herring ...	755	166	220	237	1378	27	2.3
Gull, L. Blk.-bkd...	4804	287	150	232	5473	190	3.6
Gull, G. Blk.-bkd...	179	26	3	19	221	3	1.4
Kittiwake ...	243	15	30	38	326	2	0.7
Razorbill	249	74	10	1	334	7	2.1
*Guillemot	948	32	1	—	981	16	1.6
Puffin	1000	82	447	131	1660	4	0.2
Rail, Land ...	26	12	31	30	99	—	—
Moor-Hen ...	556	73	72	71	772	13	1.8

* Of species so marked no record was kept of the number ringed from 1913 to 1920.

BIRDS OF INNER LONDON.

BY

A. HOLTE MACPHERSON.

Part I.—Additional Species.

The following species may be added to the List published last year in *British Birds* (XXII., pp. 222-244).

[Siskin (*Carduelis spinus*).—The Rev. W. Serle writes to me that on December 11th, 1908, when he was in London for the Jubilee of the B. O. U., he saw a Siskin feeding on an alder in St. James's Park. He was within ten yards of the bird, which showed no signs of having been in confinement. It seems best, however, to place the record in brackets, not only because the Siskin is so often kept as a cage-bird, but also because the species in winter is generally gregarious.]

Wryneck (*Jynx t. torquilla*).—The Rev. W. Drury informs me that a Wryneck visited the grounds of The Royal Chelsea Hospital one spring, when he was Chaplain there. It was probably in 1918. The bird stayed for a day or two, coming down with the Sparrows under his windows, and, so close, that the peculiar action of the tongue was visible as it searched the edge of the grass lawn for insects.

I have been shown a report made to H.M. Office of Works by the late Mr. Harold Russell, in which he stated that on April 9th, 1924, he saw a Wryneck in the frames enclosure in Hyde Park. He had a good view of the bird through his glasses, both on a tree and at close quarters on the ground.

Little Auk (*Alle alle*).—On December 31st, 1929, Mr. R. C. Baker, of Kensington, picked up a live Little Auk on the path by the Round Pond, Kensington Gardens. It had made its way to land with difficulty, for it was attacked by several Black-headed Gulls. After being identified at the Natural History Museum, the bird was deposited at the Zoological Gardens, where it died a few days later.

Water-Rail (*Rallus a. aquaticus*).—A Water-Rail was caught alive in the playground of the Mercers' School, Holborn, on October 1st, 1924. It was taken to the Zoological Gardens (*London Nat.*, 1924, p. 39, where the date is given in error as January 10th, 1924).

PART II.—ADDITIONAL NOTES IN 1929.

INFORMATION relating to several birds observed in Inner London during 1929 has already appeared on previous pages of this Magazine.* The following are additional notes relating to occurrences in that year.

A JAY (*Garrulus g. rufitergum*) flew into an ash tree opposite my house in Campden Hill Square on April 19th. It was probably one of a pair which frequented the grounds of Holland House throughout the summer. I have no evidence that they nested.

Dr. E. A. Barton tells me that on December 22nd he watched a TREE-CREEPER (*Certhia f. britannica*) on a tree near the Speke Monument in Kensington Gardens.

Five or six WHINCHATS (*Saxicola r. rubetra*) are reported to have been seen by Professor J. W. W. Stephens in Kensington Gardens at the end of April.

A REDSTART (*Phœnicurus ph. phœnicurus*) was observed in Kensington Gardens on May 2nd (R. G. Baird, *Field*, May 16th, 1929).

Mr. J. W. Castle informs me that at 2.30 a.m. on September 30th he heard a LITTLE OWL (*Athene n. vidalii*) calling continually for several minutes at Marlborough Gate, Pall Mall.

On September 23rd, Dr. P. Manson-Bahr watched a pair of KESTRELS (*Falco t. tinnunculus*) soaring over Portland Place. "They were executing spirals, like a sky-writing aeroplane." Towards the end of the year a Kestrel was often to be seen over or near Hyde Park.

I am informed by Mr. W. H. Thompson that he observed a SPARROW-HAWK (*Accipiter n. nisus*) on November 25th in the grounds of Buckingham Palace.

A flock of about fifteen TEAL (*Anas c. crecca*) was seen on the Thames near the Houses of Parliament in November by Mr. Hinton, the bird-keeper of St. James's Park. These may have been some birds presented by Sir Richard Graham, Bt., to the Zoological Gardens, which were allowed to attain full freedom, and were often seen during the autumn on the lake in Regent's Park.

During the cold weather early in February there were over fifty POCHARD (*Nyroca f. ferina*) on the Serpentine. At this time the TUFTED DUCK (*Nyroca fuligula*) numbered about

* See Vol. XXII, p. 377; Vol. XXIII., p. 222.

250. Both species left for a time when the water became entirely frozen, but returned later in diminished numbers. The Tufted Duck is now firmly established in London as a breeding species. In July, five broods could be seen in Kensington Gardens and Hyde Park, while Mr. Hinton estimates that he had a hundred Tufted ducklings on the lake in St. James's Park.

A dozen LAPWING (*Vanellus vanellus*) flew over Endsleigh Gardens on February 23rd (Dr. P. Manson-Bahr). I saw a flock of ten on March 10th; they were flying in a south-westerly direction over Holland House.

I noticed the COMMON SANDPIPER (*Tringa hypoleucos*) by the Serpentine both in May and August.

Dr. G. C. Low informs me that, on August 2nd, he heard and saw a REDSHANK (*Tringa t. totanus*) flying over Kensington Gardens.

A SNIPE (*Capella g. gallinago*) was reported by the Superintendent of The Central Parks to have been flushed on February 5th from the Bird Sanctuary in Kensington Gardens.

On November 21st a WOODCOCK (*Scolopax r. rusticola*) was seen flying down the Bayswater Road; it flew into Hyde Park and settled there (Ronald E. S. Turner, *Field*, December 7th, 1929).

Mr. L. Parmenter tells me that on August 14th he saw a LESSER BLACK-BACKED GULL (*Larus f. affinis*) flying across the Serpentine. It is a very rare visitor to Hyde Park.

THE FOOD OF CERTAIN BIRDS OF PREY.

BY

R. H. BROWN.

THESE data were obtained in Cumberland and Westmorland during 1928 and 1929, and are supplementary to the notes on the food of certain birds of prey as contained in the papers entitled "Field-Notes from Lakeland" for 1925, 1926 and 1927 (*antea* Vol. XX, pp. 121-127; Vol. XXI, pp. 106-116; Vol. XXII, pp. 150-157). The food recorded for the three species of Owl was found at the nests of young; that recorded for the Heron was disgorged by the nestlings; that for the Raven and Hawks was either found at the feeding-places of the adults or else at the eyries.

RAVEN (*Corvus c. corax*).—*April* 22nd: 1 Meadow-Pipit, 1 rabbit, and remains of an ewe. *May* 5th: 2 water-rats and a dozen shells, chocolate banded on a pinkish ground.

LONG-EARED OWL (*Asio o. otus*).—*May* 20th: 1 Greenfinch, 1 Willow-Warbler, 1 Pied Flycatcher. *June* 17th: 1 Song-Thrush and several dung-beetles.

TAWNY OWL (*Strix a. sylvatica*).—*April* 8th: 1 rabbit. *May* 14th: 1 Song-Thrush. 27th: 1 Starling, 1 Blackbird.

BARN-OWL (*Tyto a. alba.*).—*May* 15th: 1 brown rat. 22nd: 1 common shrew. 29th: 1 long-tailed field-mouse, 1 common shrew. *June* 3rd: 1 mole. 8th: 1 Song-Thrush. 15th: 2 Song-Thrushes. 27th: 1 long-tailed field-mouse, 2 moles. *July* 3rd: 2 moles. 10th: 1 short-tailed field-mouse.

PEREGRINE FALCON (*Falco p. peregrinus*).

Eyrie No. 1. 1928.—*February* 5th: 1 Song-Thrush, 1 Red Grouse. *March* 18th: 1 Pigeon. *April* 1st: 1 Greenfinch, 1 Starling, 1 Mistle-Thrush. *May* 5th: 1 Starling, 3 Red Grouse, 2 Homing Pigeons. *June* 10th: 1 Blackbird, 1 Red Grouse. *September* 16th: 1 Song-Thrush, 1 Pigeon. *October* 28th: 2 Redwings, 1 Wood-Pigeon, 1 Red Grouse. *November* 18th: 2 Wood-Pigeons, 1 Red Grouse. *December* 15th: 1 Redwing, 2 Blackbirds. 1929.—*February* 24th: 1 Snow-Bunting, 2 Song-Thrushes, 1 Lapwing, 1 Wood-Pigeon, 1 Red Grouse. *April* 7th: 1 Song-Thrush, 1 Wood-Pigeon, 1 Redshank, 1 Red Grouse, 1 Pigeon. *May* 11th: 1 Red Grouse, 2 Pigeons. *June* 22nd: 5 Starlings, 2 Pigeons. *November* 3rd: No prey.

Eyrie No. 2. 1928.—*April* 15th: 1 Pigeon. *May* 26th: 1 Wood-Pigeon, 2 Pigeons. *July* 29th: 1 Rook, 1 Red

Grouse, 1 Wood-Pigeon, 2 Pigeons. *August* 12th: 2 Pigeons. *September* 30th: 1 Song-Thrush, 1 Blackbird, 1 Pigeon. *October* 14th: 1 Meadow-Pipit, 2 Pigeons. *November* 25th: 1 Song-Thrush, 2 Pigeons.

Eyrie No. 3. 1928.—*May* 6th: 1 Greenfinch, 1 Meadow-Pipit, 2 Wood-Pigeons, 1 Pigeon. *July* 7th: 1 Starling, 1 Meadow-Pipit. *August* 19th: 1 Mistle-Thrush, 1 Common Buzzard, 1 Wood-Pigeon. *September* 16th: 1 Pigeon. *December* 22nd: 1 Red Grouse.

Eyrie No. 4. 1928.—*August* 11th: 1 Song-Thrush, 1 Pigeon. *September* 9th: 1 Rook, 1 Meadow-Pipit, 1 Pigeon.

Eyrie No. 5. 1928.—*February* 19th: Falcon about, but no prey found. *May* 27th: 1 Meadow-Pipit, 1 Common Gull, 2 Pigeons. *June* 24th: 1 Rook, 1 Starling, 1 Song-Thrush, 1 Red Grouse, 5 Homing-Pigeons. *July* 8th: 1 Song-Thrush, 1 Wood-Pigeon, 1 Red Grouse, 2 Pigeons. *August* 5th: 1 Red Grouse, 1 Pigeon. *September* 9th: 1 Song-Thrush, 1 Mistle-Thrush, 1 Red Grouse, 2 Pigeons. *October* 20th: 1 Rook, 1 Pigeon. *November* 9th: 1 Homing-Pigeon. 1929.—*April* 14th: 1 Fieldfare, 1 Red Grouse, 1 Pigeon. *May* 19th: 1 Song-Thrush, 2 Blackbirds, 1 Pigeon. *June* 4th: 1 Song-Thrush, 3 Pigeons. *November* 10th: 1 Fieldfare, 3 Pigeons. *December* 8th: 1 Starling, 3 Wood-Pigeons.

Eyrie No. 6. 1928.—*May* 23rd: 1 Song-Thrush, 1 Wood-Pigeon, 1 Pigeon. 31st: 1 Wood-Pigeon. *June* 17th: 1 Meadow-Pipit, 1 Song-Thrush, 1 Wood-Pigeon, 4 Homing-Pigeons. *July* 3rd: 1 Starling, 2 Song-Thrushes, 2 Wood-Pigeons, 1 Golden Plover, 1 Pigeon. 12th: 1 Rook, 1 Starling, 1 Song-Thrush, 2 Golden Plover, 4 Pigeons, 2 water-rats. *August* 30th: 1 Starling, 2 Song-Thrushes, 1 Red Grouse, 3 Pigeons, 1 Homing-Pigeon, 1 water-rat. *September* 23rd: 2 Meadow-Pipits, 1 Sky-Lark, 1 Mistle-Thrush, 1 Song-Thrush, 1 Wood-Pigeon, 1 Red Grouse, 2 Pigeons, 1 Homing-Pigeon. *November* 22nd: 1 Redwing, 1 Pigeon. *December* 22nd: 2 Pigeons, 1 rabbit. 1929.—*February* 3rd: 1 Golden Plover, 1 Red Grouse, 2 Pigeons. *March* 3rd: 1 Redwing, 2 Golden Plover, 1 Red Grouse. *May* 12th: 1 Song-Thrush, 1 Blackbird, 1 Wood-Pigeon. *June* 9th: 1 Curlew, 2 Wood-Pigeons. *August* 18th: 1 Rook, 1 Wood-Pigeon, 1 Golden Plover, 3 Pigeons, 1 Homing-Pigeon. *September* 15th: 2 Wood-Pigeons, 1 Golden Plover, 2 Homing-Pigeons. *November* 4th: 1 Rook, 1 Redwing, 3 Pigeons.

MERLIN (*Falco c. æsalon*).

Eyrie No. 1. 1928.—*June* 20th: 1 Greenfinch, 1 Meadow-Pipit. *July* 12th: 1 Meadow-Pipit, 1 Song-Thrush. *August*

5th: 2 Meadow-Pipits, 1 Wheatear. 1929.—*June* 23rd: 2 Meadow-Pipits, 1 Wheatear, and several oak-eggar moths. *July* 4th: 1 Yellow Bunting, 1 Song-Thrush.

Eyrie No. 2.—*June* 24th: 1 Song-Thrush. 29th: 1 Greenfinch, 2 Meadow-Pipits. *July* 12th: 2 Meadow-Pipits.

KESTREL (*Falco t. tinnunculus*).

Eyrie No. 1. 1928.—*June* 20th: 1 Song-Thrush, 1 short-tailed field-mouse. *July* 2nd: 1 rabbit. 1929.—*June* 17th: 1 Willow-Warbler, 1 Blackbird. 30th: 2 Yellow Buntings, 1 Song-Thrush. *July* 8th: 1 Starling, 1 Song-Thrush, 1 Sand-Martin.

Eyrie No. 2—*July* 7th: 2 long-tailed field-mice, 3 short-tailed field-mice. 22nd: 1 Meadow-Pipit.

COMMON BUZZARD (*Buteo b. buteo*).

Eyrie No. 1.—*April* 1st: 1 Red Grouse and much frog-spawn. *June* 2nd: 2 rabbits.

Eyrie No. 2. 1928—*May* 18th: 1 long-tailed field-mouse, 1 rabbit. *June* 2nd: 1 rabbit. 1929.—*June* 9th: 1 long-tailed field-mouse, 1 common shrew, 5 rabbits. 16th: 1 short-tailed field-mouse. *July* 4th: 1 Red Grouse.

Eyrie No. 3. 1928.—*May* 31st: 1 rabbit. *June* 17th: 1 Meadow Pipit, 1 water-rat, 1 rabbit. *July* 1st: 2 rabbits. 1929.—*May* 26th: 3 rabbits. *June* 2nd: 2 rabbits. 16th: 1 Meadow-Pipit, 2 rabbits.

Eyrie No. 4. 1928.—*May* 31st: 1 short-tailed field-mouse, 1 rabbit. *June* 17th: 1 rabbit. *July* 12th: 2 rabbits. 1929.—*March* 15th: 2 Red Grouse. *June* 4th: 2 rabbits.

SPARROW-HAWK (*Accipiter n. nisus*).

Eyrie No. 1. 1928.—*April* 26th: 1 Starling, 1 Blackbird. *May* 15th: 2 Song-Thrushes. *June* 24th: 1 Song-Thrush. 1929.—*June* 2nd: 1 Greenfinch, 1 Song-Thrush. *July* 14th: 2 Song-Thrushes.

Eyrie No. 2. 1928.—*June* 26th: 1 House-Sparrow. *July* 6th: 1 Greenfinch, 1 Great Tit, 1 Song-Thrush. 10th: 1 Long-tailed Tit, 1 House-Sparrow, 1 Willow-Warbler. 27th: 5 Song-Thrushes, 9 Blackbirds, 1 Sandpiper, 2 nestling Curlews. *August* 9th: 1 Starling, 1 Greenfinch, 1 House-Sparrow, 2 Song-Thrushes, 1 Blackbird. 17th: 1 Greenfinch, 1 Song-Thrush. *September* 12th: 1 Yellow Bunting, 2 Blackbirds, 1 Swallow, and some dor-beetles. 1929.—*June* 21st: 1 Greenfinch, 1 Sky-Lark, 1 Blackbird, 1 Wood-Pigeon. 26th: 2 Starlings, 1 Goldfinch, 1 Blackbird. *July* 5th: 1 Starling, 1 Greenfinch, 2 Song-Thrushes. 15th: 1 Greenfinch, 2 Song-Thrushes, 1 Swallow. 26th: 1 Chaf-

finch, 3 Blackbirds, 3 Song-Thrushes. *September* 1st: 2 Song-Thrushes. 30th: 2 Blackbirds.

Eyrie No. 3. 1928.—*July* 1st: 1 Song-Thrush, 2 Wood-Pigeons. 8th: 1 Song-Thrush, 1 Mistle-Thrush. 29th: 1 Greenfinch, 4 Song-Thrushes, 4 Blackbirds, 1 Wood-Pigeon. *August* 26th: 1 Greenfinch, 2 Song-Thrushes. *September* 14*th*: 1 Wood-Pigeon. 1929.—*June* 27th: 1 Magpie, 1 Greenfinch, 1 Song-Thrush, 2 Blackbirds. *August* 1st: 4 Starlings, 3 Song-Thrushes, 6 Blackbirds.

Eyrie No. 4.—*July* 13th: 2 Starlings, 1 Greenfinch, 2 Song-Thrushes, 1 Blackbird.

COMMON HERON (*Ardea c. cinerea*). 1928.—*April* 29th: 2 small trout, 3 long-tailed field-mice, 2 water-rats. *May* 7th: 1 chub, 2 small eels. 12th: 1 trout, 3 water-rats. *July* 1st: 1 chub, 1 frog, part of a rabbit. 1929.—*May* 1st: 1 eel. 9th: 1 eel, 1 chub, 2 frogs. 16th: 1 eel, 1 long-tailed field-mouse. *June* 27th: 3 small trout, hind leg of rabbit.

NOTES

STARLINGS USING A ROOST IN SUMMER.

SOME observations that I made in Bedfordshire may, I think, be considered of added interest to this subject (see *British Birds*, Vol. XXIII, pp. 6-7). Starlings that I estimated at upwards of 20,000 birds had selected for their roost a chestnut plantation with a very considerable undergrowth of dense hawthorn bushes on the Crown Farm at Turney. On May 2nd, 1912, and the two following evenings, the keeper, by shooting, caused them with the exception of about a hundred birds to desert this roost. I gathered up twelve birds that had been killed, and every one proved to be a male. At this particular time of year practically all the females would be incubating, as nesting in this species in any particular locality seems to be simultaneous as regards laying and the time the young leave the nest. Hence, I concluded that during that time of the year the females would evidently be in a very small percentage indeed.

On June 15th, 1913, the Starlings were occupying the same roost. My daughter and I attempted to estimate their number. They started to come in about 5 p.m. and so continued for nearly three hours, and we calculated there were fully 30,000 birds. The line of flight from the south and west was very greatly in excess than from any other directions.

Again visiting this locality May 1st, 1914, there did not appear to be more than one per cent. of their numbers coming from the north or east; the wind then being from the south.

J. S. ELLIOTT.

GREEN WOODPECKER ATTACKING HIVES.

SOME time ago, Mr. G. C. Hobday, of Sandbanks, Bournemouth, informed me that he had seen a Green Woodpecker (*Picus v. virescens*) close to his hives and enquired whether this species was known to take bees. I informed him that I knew of no recorded instance of their taking them, and in reply he sent me two copies of the *British Bee Journal*, Nos. 2,448 and 2,453 (1929). In the first, Mr. F. Holland described and figured a hole made in February about 2½ inches in diameter in the top lift of the outer case of a W.B.C. hive. The wood was about half-an-inch thick, and the work was presumed to be that of the Green Woodpecker. No damage was done to the bees as the top of the hive was empty.

Writing from Boxford, Suffolk, Mr. C. Hogan states that a few years ago he found the entrances to his hives much damaged in winter. Some 200 holes were made, the largest being about 3 inches in diameter. By watching, it was discovered that Green Woodpeckers were the culprits, and their tapping could be heard at the house some 200 yards away. To save the apiary, five of the birds were shot. The damage to the apiary was very severe and many of the hives were subsequently queenless. It was noted that out of about 80 hives the single-walled Langstroth type was almost invariably chosen for attack in preference to the double-walled hives. There seems to be no proof that bees or honey were actually taken, but the damage to the hives necessitated strong measures, and since then, though an occasional small hole has been noticed, there has been no need to take direct action. F. C. R. JOURDAIN.

SNOWY OWL IN SOMERSETSHIRE.

ON January 18th, 1930, I saw a Snowy Owl (*Nyctea nyctea*) on Haddon Hill, Exmoor. The bird, which was on the ground among short heather, was about forty yards away, and appeared to be about the size of a Buzzard. I watched it for some minutes and could see that it was not entirely white, but had some blackish speckles or bars. After I had watched it for a few minutes it flew heavily as though tired, and again alighted at some distance. As I was hunting at the time I was unable to follow it up. GEOFFRINA CHURCHILL.

FLEDGING-PERIOD OF THE BARN-OWL.

THE following notes may be of interest in connection with the fledging-period of the Barn-Owl (*Tyto a. alba*) as observed in Cumberland. The eggs were laid on hay in a corner of a mewstead, and a few feet below a wall-plate. Four eggs were hatched, and three young reared; these young were hatched on May 22nd, 24th and 26th respectively. By June 8th the nestlings were growing the long, silky down and the quills of the flight-feathers were appearing. By the 15th they were covered with the long down, and their long faces were noticeable; the feathers were beginning to sprout from the flight-quills, and the nestlings were first heard snoring. By 22nd the flight and tail-feathers were further sprouted, and their faces were nearly feathered. The nestlings lay on their backs and used their talons when disturbed. By 29th the flight and tail-feathers were further sprouted, and the mantle

feathers were noticed under the silky down. The nestlings were upright and walking about the hay. On July 6th the plumage was more perfect, down adhering to the feather-tips; the nestlings were waving their heads. On 10th they were almost fledged and on 12th they were found on the wall-plate. On the 15th they were judged to be in juvenile plumage, but they made no attempt at flight when handled. On 23rd they had moved further along the wall-plate, but still no attempts at flight were made. On July 29th the nestlings flew the length of the barn when disturbed, the fledging-period thus being sixty-four to sixty-eight days. R. H. BROWN.

SPOONBILL BREEDING IN DENMARK.

IN the *Dansk Ornithologisk Forenings Tidsskrift* for 1929, pp. 111-118, V. Holstein gives us the welcome news that a small colony of Spoonbills (*Platalea leucorodia*), consisting of three pairs, was discovered nesting in an extensive marsh in Jutland during the summer of 1928 by Messrs. Koefoed, Klinge, Thornys, Schäffer and Bramsen, who were making a study of the wild life of the district. There is also reason to believe that some years ago a pair nested in Jutland, but the eggs were taken and the birds shot. For many years the Jutland coasts have been visited by small parties of these birds, but this is the first time that breeding has been recorded, and makes a considerable northern extension of the range of the species in Europe. The nests were not disturbed in 1928, and the young were successfully brought off. The paper is illustrated by some excellent photographs of nests, eggs and young birds by A. Heilmann.

The Danish government has given absolute protection to this species for the years 1928, 1929 and 1930.

F. C. R. JOURDAIN

STORM-DRIVEN BIRDS ON THE LONDON RESERVOIRS.

ON December 7th, 1929, during one of the strong gales, D. L. L. saw two adult Kittiwakes (*Rissa tridactyla*) at Staines Reservoirs, Middlesex. Probably they were greatly in need of food, for they beat around the banks continuously throughout the hour for which they were watched. They showed no signs of exhaustion. On December 16th, there was a dead adult floating in the water of the reservoir, which had clearly been there several days.

On January 18th, 1930, after the last of the gales, T. H. H. found another adult Kittiwake floating dead on Littleton

Reservoir (Middlesex). It had been dead several days. There are extremely few previous records for Middlesex.

On January 1st, 1930, we saw a Little Auk (*Alle alle*) on Molesey Reservoirs (Surrey). Like those reported from Staines Reservoirs, which are only a few miles distant, on December 31st (*antea*, pp. 252-3), but unlike the one captured on the Round Pond, Kensington Gardens, on December 31st (*Field*, 8.II.30), it was wild and active. It flew rapidly out to the centre of the reservoir when we disturbed it, and dived on striking the water. There are about fourteen previous records for Surrey.

D. L. LACK.
T. H. HARRISSON.

STORM-DRIVEN BIRDS IN SOUTH WALES, DECEMBER, 1929.

THE coast of South Wales experienced to the full the severity of the gales which occurred at the beginning of the month, and as a consequence many unusual species have been reported to us and are recorded in the list which follows.

GANNET (*Sula bassana*).—One was found on the roof of a house in Aberystwyth (Cards.) on December 6th and reported to the National Museum of Wales by Mr. W. Miall Jones.

STORM-PETREL (*Hydrobates pelagicus*).—The National Museum of Wales received a specimen from Haverfordwest (Pemb.), found in that town on December 12th.

LEACH'S FORK-TAILED PETREL (*Oceanodroma l. leucorrhoa*).—Two were reported by Mr. W. Miall Jones to the National Museum of Wales, one being picked up on the railway embankment, December 6th, and the other on the shore at Aberystwyth (Cards.), December 12th.

The Museum also received one which had been picked up alive in a garden in Cardiff (Glam.), December 7th, and another specimen was received from Llanboidy (Carms.), where it was found on December 10th. This is the first to be recorded from Carmarthenshire.

FULMAR PETREL (*Fulmarus g. glacialis*).—On December 15th, we searched the tide-line for a couple of miles along the Kenfig Sands (Glam.). Dead birds were found at almost every step, the majority being Kittiwakes,* Puffins, Razorbills and Guillemots with a few Herring-Gulls. Among these we discovered a Fulmar Petrel of the pale form, a good specimen and quite fresh. This is the first to be recorded for Glamorgan, and as there are comparatively few records for the whole of South Wales it may be of interest to note here

* The mortality amongst Kittiwakes was noticeably heavy—out of 34 Gulls found, 30 were of this species.

that besides the one recorded for Pembrokeshire (Mathews, *Birds of Pemb.*), Professor J. H. Salter informs us that Hutchings, the taxidermist in Aberystwyth, must have had about a dozen through his hands, but without any data. He has himself seen two Cardiganshire specimens, one shot at Aberystwyth on January 7th, 1892, and the other he picked up on the beach at Clarach, about two miles north of Aberystwyth on June 6th, 1895. We are informed by Mr. Ewart Cooke, of Llanelly, that Jeffreys, the taxidermist at Carmarthen, has a specimen which is said to have been taken locally, but there are no data. There are apparently no records from Breconshire, Radnorshire, and Monmouthshire.

GREY PHALAROPE (*Phalaropus fulicarius*).—The bird already reported from Pembroke, December 7th (*antea*, page 230), must be included in this list.

ARCTIC SKUA (*Stercorarius parasiticus*).—We observed one on the Llanishen Reservoirs (Glam.) on December 8th, and Major C. Hodgkinson-Smith informs us that one was present off Sker Point (Glam.), and was seen by several observers between December 9th and 15th.

LITTLE AUK (*Alle alle*).—The National Museum of Wales received a specimen in the flesh, which had been found near Cowbridge (Glam.) on December 12th.

We are indebted to Mr. Colin Matheson, the Keeper of the Department of Zoology, for the records of the specimens sent in to the National Museum of Wales.

GEOFFREY C. S. INGRAM.
H. MORREY SALMON.

BLACK-THROATED DIVER IN SURREY.

ON December 24th, 1929, my friend, Mr. T. H. Harrisson, observed a Black-throated Diver (*Colymbus arcticus*) on Molesey Reservoirs, the bird probably having arrived during one of the gales which had occurred with almost unbroken succession since the early part of November.

On January 12th, I visited the Reservoirs in the company of Messrs. T. H. and W. R. D. Harrisson, and P. A. D. Hollom. When we arrived the bird was within about 50 yards of the concrete wall, from the top of which we obtained an excellent view with the aid of a powerful telescope.

Mr. T. H. Harrisson and his brother, who have seen the Diver on at least a dozen different days, inform me that it evinced a strong attachment to a particular corner of the Reservoirs, driving away any birds which ventured to

encroach upon its territory. On two occasions, after diving, it was seen to emerge beneath a Great Crested Grebe, and a vigorous onslaught upon one of these birds was once witnessed.

The Diver was still present on January 18th, but could not be found on January 22nd. HOWARD BENTHAM.

WOODPIGEON INCUBATING IN JANUARY IN LONDON.

A WOODPIGEON (*C. palumbus*) built a new nest on top of an old one near the top of a fifteen-foot May tree in Onslow Gardens, and on January 9th, 1930, was sitting hard on two well-incubated eggs. Up to this all was going well and there seemed every prospect of a brood being reared; but she then deserted, for which cats were probably to blame.

H. LYNES.

OYSTERCATCHER NESTING IN KENT.

SINCE instances of the Oystercatcher (*Hæmatopus o. ostralegus*) nesting in Kent have been very few in recent years, it may be of interest to record that on May 30th, 1929, three eggs of this species were brought to me by a friend who had found them in the neighbourhood of Sandwich. On June 12th I visited the place with him and, near the site of the first nest, we found a second containing two eggs. I had previously found a nest at the same spot on June 23rd, 1927, but so far as I know none was found in 1928. In each case the nesting site was a shallow depression in the shingle, lined with a few pieces of shell. LIONEL H. DAGLEY.

AVOCET IN DEVON.

I AM informed by Mr. M. W. L. Tutton, of Cambridge, that on January 22nd, 1930, he saw, from the train, an Avocet (*Recurvirostra avocetta*) alighting on the mud flats at the mouth of the Teign. He tells me that the bird was near enough for him to see its black and white plumage and its dark upturned bill, which made it quite unmistakable. As the train was travelling slowly he was able to observe the bird for some time. J. M. Mc C. FISHER.

LITTLE GULL FEEDING ON EARTH-WORMS.

AN immature Little Gull (*Larus minutus*) was in the vicinity of Weybourne, on the north Norfolk coast, from January 18th to 25th, 1930. On two occasions I watched it feeding on earthworms on a neighbouring field where ploughing was in

progress. I was near enough to be able to see the worms hanging from its bill. As this seems to be an addition to the dietary given in the *Practical Handbook*, it may be worth recording. R. M. GARNETT.

CENSUS OF HERONRIES.—Since the publication of Mr. Nicholson's *Report* on our Census of Heronries, 1928 (Vol. XXII, pp. 270-323 and 334-372) we have received a number of additions and corrections. Mr. Nicholson is now preparing these for publication as a Supplementary Report, and this will appear in the April number. If any of our readers have any further material, this should be sent in immediately.

RAVENS NESTING IN TREES IN DEVONSHIRE.—With further reference to the notes on this subject (*antea*, pp. 126 and 198), Mr. Owen Wynne informs us that in 1929 he found the nest of a further pair in a big larch tree in a valley. He had noted a pair haunting the locality every spring for four or five years, but had not previously found the nest.

CHIFFCHAFF IN WINTER IN SOMERSETSHIRE.—Mr. E. G. Holt informs us that he watched a Chiffchaff (*Phylloscopus collybita*) at Cossington Manor, Somerset, for about five minutes on February 14th, 1930. The day was warm with the sun out, and the bird sang almost continuously. We have notes of two other occurrences in winter (December and January) in the county, where it has also been recorded as early as March 4th.

SAND-MARTINS NESTING IN DRAIN-PIPES.—With reference to previous notes on this subject (*cf.* Vol. XXI, pp. 166 and 208), Mr. L. H. Dagley informs us that in 1929 he found several drain-pipes in an old wall at Ross-on-Wye being used for nesting, while a few yards away, many Sand-Martins were nesting in normal sites in the river bank.

WHOOPER AND BEWICK'S SWANS IN KENT.—Mr. Lionel H. Dagley informs us that a *Cygnus cygnus* was shot out of a party of four in Pegwell Bay, on February 15th, 1929, and that he saw several at Kingsgate on the 22nd. Also that an immature *C. bewickii* was shot at Broadstairs on February 21st.

PINK-FOOTED GEESE IN KENT.—Mr. Lionel H. Dagley writes that on January 4th, 1929, he saw a skein of five

Anser brachyrhynchus flying across Pegwell Bay, and that with his glasses he was able to see satisfactorily their small bills.

LEACH'S FORK-TAILED AND STORM-PETRELS INLAND.—With reference to the note on this subject (*antea*, pp. 253-4), Mr. H. E. Forrest sends the following additional records :—

LEACH'S FORK-TAILED PETREL.

On November 23rd, one found dead near Shrewsbury, Shropshire.

On December 10th, one killed against telegraph wires at Barmouth, Merionethshire, as reported by Mr. J. Backhouse.

In December, two reported from Aberystwyth, Cardiganshire, by Prof. J. H. Salter.

Mr. Stanley Lewis sends us the following list of occurrences, all in Somersetshire in December, 1929 :—

STORM-PETREL.

One at Cleveden, two at Uphill, one at Clarence Park (Weston-super-Mare), one at Burnham-on-Sea (kept alive for a time by Mr. Holt and then liberated), one at Bridgwater (R. Parrett), two at Shurton Bars and one at Meare.

LETTER.

BEETLES IN BIRDS' NESTS.

To the Editors of BRITISH BIRDS.

SIRS,—It had been known for many years that a certain beetle (*Microglossa nidicola* Fairm.) occurred in nests of the Sand-Martin (*Riparia riparia*). Thinking that there might be beetles found in nests of other birds, I began exploring nests of birds and mammals in 1904, and published some results in *The Entomological Monthly Magazine* in 1906. Since then much work has been done with moles' nests by coleopterists, but not nearly so much with birds' nests, because of the difficulty of getting the nests. I discovered a beetle (*Gnathoncus nidicola* Joy), new to science, in the nest of a Barn-Owl (*Tyto a. alba*). Last year, Mr. H. G. Wagstaff, Coventry, kindly sent me nests of Buzzards (*Buteo b. buteo*) from Wales, and I had one from Devon. In these there were numbers of a beetle new to Britain (*Microglossa picipennis* Gyll). About twenty different species are known to occur in birds' nests, and nine breed only in them. More ought to be learnt as to whether certain beetles are attached to the nests of only certain species of birds. Some are found in several different kinds of nests, but others, so far, have been found only in certain kinds, but there are many species of birds whose nests have never yet been examined.

More must be learnt, too, about the economy of each beetle in the nest. *M. nidicola* and *M. pulla*, in Tits' nests, I believe, feed on the larvæ of the special fleas.

I should much like some ornithologists to get nests for me during the summer. I should want the whole nest sent as soon as the young had flown, but it is most important that the nest should be collected and sent in a certain way. If any readers of *British Birds* would be willing to help in this investigation, would they write direct to me for details.

NORMAN H. JOY.

78, CRESCENT ROAD, READING.

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ORNITHOLOGICAL REPORT FOR NORFOLK FOR 1929.

BY

B. B. RIVIERE, F.R.C.S., M.B.O.U.

AGAIN I have to thank a number of correspondents for their assistance in compiling this Report for 1929, and Mr. A. W. Preston for information relating to weather conditions. If these notes are somewhat more brief than in previous years, I must plead pressure of work in connection with my book on the Birds of Norfolk, the manuscript of which is now practically completed.

The weather of 1929 was remarkable for the hard frost of February, which was the coldest month since 1895, the prolonged drought throughout the spring, summer and early autumn, and the frequent severe gales which occurred during the last two months of the year. Almost continuous frost prevailed during the last half of January and the first week of February, but it was not until February 11th that the period of intense cold set in which lasted, with only a brief respite between February 20th and 25th, until March 7th. The lowest temperature —13 on the screen and 0.8 on the grass was registered on the night of February 15th.

Although most birds suffered considerably, and there was a heavy mortality amongst certain species, this spell of cold, though extremely severe, proved on the whole much less disastrous to bird life than the more prolonged winter of 1916-17. Amongst Passerine birds many Redwings and Song-Thrushes, and a few Blackbirds were picked up dead, while Fieldfares, as is usually the case in very hard weather, appeared to move on. Bearded Tits undoubtedly suffered, and a decrease in the number of breeding pairs was noted in the spring, though fortunately to nothing like the same extent as in 1917. No decrease in the number of Tree-Creepers or Goldcrests appears to have been noticed.

Bitterns were starved out, the whole of the broads and rivers being frozen over, and nine or ten were picked up dead during the month. Herons also appear to have been hard put to it, and on February 16th one, apparently half-starved, was killed by a boy with a stick on the cattle market in Norwich. Many starved Moorhens were picked up dead throughout the Broads district, while thousands of Black-headed Gulls visited the gardens in Norwich daily to be fed.

Along the coast-line the salt marshes were frozen over, and the tidal muds froze as the tide ebbed. Waders suffered severely, and Mr. M. C. W. Dilke, who was wild-fowling down the Wash, told me that he saw numbers of dead and dying Dunlin along the shore-line, while Redshanks were so weak that they could scarcely fly. Wild-fowlers reaped a rich harvest, though many of the birds were in such poor condition as to be hardly worth keeping. Unprecedented numbers of Brent Geese appeared on the north coast estuaries, and Mr. Harcourt Wood, punt-gunning from Blakeney, killed 101 in five days. Large numbers of Duck, including Mallard, Teal, Wigeon, Tufted Duck, Pochard, Scaup and Scoters, were present on the coast; a small herd of Whooper Swans frequented the River Wensum, near Taverham (L. Lloyd), and a few Goosanders and Smews were obtained. Along the few miles of shore between Hemsby and Palling, 120 dead birds were found by Miss J. Ferrier between February 11th and March 8th. These included 27 Common Gulls, 2 Black-headed Gulls, 4 Herring-Gulls, 14 Guillemots, 1 Razorbill, 3 Whooper Swans, 2 Brent Geese, 3 Common Scoters, 8 Velvet-Scoters, 3 Scaups, 4 Tufted Ducks, 4 Mallard, 6 Oyster-catchers, 4 Curlew, 1 Knot, 2 Red-throated Divers, 1 Black-throated Diver, 2 Red-necked Grebes, 1 Black-necked Grebe, and 1 Common Buzzard.

The fine warm spring and summer which followed the arctic weather of February proved extremely favourable to the young Partridges and wild Pheasants, and 1920 was the best hatching and rearing season known for many years.

The birds most noticeably affected by the prolonged drought were Blackbirds and Thrushes, which in the late summer appeared almost entirely to desert the gardens for the coverts and low-lying water meadows.

The most notable event of the year was the nesting of the Pintail in the S.W. division of the county; while amongst rarities which occurred may be mentioned two Black-winged Stilts, a Madeiran Little Shearwater, and a Red-crested Pochard.

CLASSIFIED NOTES.

CROSSBILL (*Loxia c. curvirostra*).—A considerable immigration of Crossbills appears to have taken place during the late summer and early autumn. On June 28th a flock of ten (containing no adult males) was seen at Mundesley (A. Dalison). On June 30th an adult male came on board the

E. Dudgeon Light-ship, 21 miles N.N.E. of Blakeney, and after resting for a while flew off to the W.N.W. (W. S. Sharman). On July 8th a flock of eight was seen at Happisburgh (Miss D. Slipper), and on August 17th one was picked up dead in a green-house at Bagthorpe (S. H. Long).

BLUE-HEADED WAGTAIL (*Motacilla f. flava*).—One was seen at Hanworth on September 23rd (Miss M. Barclay).

WAXWING (*Bombycilla garrulus*).—Five were seen at Wighton on February 18th, and a flock of twelve in the same locality a few days later (N. Rippingall).

CHIFFCHAFF (*Phylloscopus c. collybita*).—An exceptionally late specimen was identified by Mr. R. M. Garnett in a wood near Kelling on November 26th.

BARRED WARBLER (*Sylvia n. nisoria*).—One was identified by Mr. E. C. Arnold and Mr. H. A. Macpherson on Cley beach on September 5th.

HOOPOE (*Upupa e. epops*).—One was seen at Hunstanton on September 20th (C. R. H. Ball).

ROUGH-LEGGED BUZZARD (*Buteo l. lagopus*).—The only two reported to me during the year were seen at Morston on November 15th (W. A. Payn).

COMMON BUZZARD (*Buteo b. buteo*).—A rather unusual number of Common Buzzards occurred in the county during the year. On February 12th one was found dead on the beach at Hemsby (Miss J. Ferrier). On April 19th one was seen at Cley (R. M. Garnett). On May 1st one was trapped at Kelling (A. H. Patterson). On June 1st one was shot at Hemsby (*id.*), and on January 19th one was trapped at Rollesby (E. C. Saunders).

MARSH-HARRIER (*Circus æ. æruginosus*).—One pair of Marsh-Harriers bred in the usual area of the Broads district. This nest contained four eggs from which the first nestling hatched on June 27th. There are reasons for believing that another pair also bred on a neighbouring estate, but the nest was not discovered.

MONTAGU'S HARRIER (*Circus pygargus*).—At least seven pairs bred this year within the Broads district. One of the nests found contained the record clutch of eight eggs (J. Vincent). From these only four nestlings hatched, which suggests the possibility that the remaining four were laid by an unmated female. Another nest, kept under observation after the young were hatched, was found to be visited occasionally by the male, and photographic records of this were obtained both by Mr. Ian Thomson and Mr. Hyam. This

is the first instance of a male Montagu's Harrier visiting the nest which has been observed by Mr. Vincent.

OSPREY (*Pandion h. haliætus*).—An Osprey frequented Hickling during the last few days of April, and on May 16th one—probably the same bird—was picked up mortally wounded at Catfield (Lord William Percy). On June 1st another was seen at Hickling (J. Vincent).

SPOONBILL (*Platalea l. leucorodia*).—The first Spoonbill of the year was seen to come in from the sea over Salthouse Broad on March 22nd, but after circling round it passed on along the coast-line to the east (E. Ramm). On May 4th four were seen at Hickling (J. Vincent), and on May 13th three on Holme Marshes, a district seldom visited (C. R. H. Ball). On June 4th four were on Cley Marshes, and on June 5th no less than sixteen were seen on Breydon (E. J. Allen). The last bird was seen at Cley on September 20th (E. C. Arnold).

LITTLE BITTERN (*Ixobrychus m. minutus*).—One was flushed at Hickling on March 27th (J. Vincent), and another was picked up dead at Holme in December (C. R. H. Ball).

COMMON BITTERN (*Botaurus s. stellaris*).—Bitterns appear to have suffered severely during the prolonged February frost. Some nine or ten were picked up dead in various parts of the Broads district, and the number of nests in the Hickling area appears to have been less than the average of the past few years (J. Vincent). Upon two other estates, however, nests were recorded this year for the first time.

BAIKAL TEAL (*Anas formosa*).—On December 21st a drake was shot by Mr. G. Cain at Wells. Although this bird was full-winged and in perfect condition, the Baikal Teal is so frequently kept in a state of captivity or semi-captivity that it can only be regarded as a probable "escape."

GARGANEY (*A. querquedula*).—As in 1928, this year proved an exceptionally good one for Garganeys, and it is to be hoped that the increase in the number of breeding pairs in these two seasons will be maintained. Five pairs bred at Hickling (J. Vincent), and about the same number at Ranworth (H. J. Cator). One pair almost certainly nested again at Cley, though the nest was not actually located, while two nests—possibly belonging to the same pair, as the first clutch of eggs was taken—were found near Burnham Overy (Miss E. L. Turner).

PINTAIL (*A. a. acuta*).—The year 1929 proved a remarkable one for Pintails in Norfolk. A number of pairs were seen

both on the Breckland meres and in the Broads district up till the middle of May, while two pairs nested in the county, this being the first authentic instance of this species breeding in England.

A full account of the first nest found has already appeared (*antea*, Vol. XXIII., p. 191) from the pen of Mr. F. S. Chapman, its discoverer, who is to be congratulated upon the care he took to establish proof of the correctness of his identification. This nest was situated on a heath in S.W. Norfolk, some 300 yards from the nearest water, and when first found on April 20th contained one egg. I had the opportunity of seeing both the nest and the sitting duck on May 12th, the number of eggs being then eight, and from these six ducklings hatched on May 23rd.

A second nest was seen by Dr. A. H. Evans on May 22nd, this being situated a few hundred yards from the first. (*Ibis*, 1930, p. 130).

RED-CRESTED POCHARD (*Netta rufina*).—An adult drake was shot on Rockland Broad on February 5th (F. E. Gunn).

"PAGET'S POCHARD" (*Nyroca ferina* × *N. nyroca*).—A male Common Pochard × Ferruginous Duck hybrid was shot at Hickling on October 23rd. This makes the seventh or eighth specimen obtained in the county, all of which have been drakes.

LEACH'S FORK-TAILED PETREL (*Oceanodroma l. leucorrhoa*). —On December 6th a Fork-tailed Petrel was found in the talons of a Sparrow-Hawk, which was shot at Ryston Hall, Downham Market, and was sent for identification to *The Field* (*Field*, December 28th, 1929, p. 993). The bird was, no doubt, blown inland by the severe gales which prevailed about this time, and it appears to be the first record of a Petrel of any species falling a prey to a Sparrow-Hawk.

MADEIRAN LITTLE SHEARWATER (*Puffinus a. baroli*).—On May 11th a specimen of this rare Shearwater, the second for Norfolk, was picked up dead at high-water mark on Blakeney Point by R. Pinchen, the watcher (*antea*, p. 41). This bird, which proved on dissection to be a female, is now in the Norwich Museum.

SLAVONIAN GREBE (*Podiceps auritus*).—One or two were reported during the hard weather of February.

RED-NECKED GREBE (*P. g. griseigena*).—Several were reported during February.

BLACK-NECKED GREBE (*P. n. nigricollis*).—Seven were seen on Hickling early in April (J. Vincent); one on Ringmere on

August 26th (Miss M. Barclay), and one was picked up dead on Hemsby beach on March 6th (Miss J. Ferrier).

WOOD-SANDPIPER (*Tringa glareola*).—One was identified at Cley on August 21st (R. M. Garnett); and one, possibly the same bird, on August 24th (Miss M. Barclay).

SPOTTED REDSHANK (*Tringa erythropus*).—Three were seen at Hickling on May 24th (J. Vincent), and one at Cley on September 23rd (E. C. Arnold).

GREY PHALAROPE (*Phalaropus fulicarius*).—One, an adult female, was shot on Breydon on September 24th (E. C. Saunders); and one at Weybourne on December 16th (S. H. Long).

RED-NECKED PHALAROPE (*Ph. lobatus*).—A female, in juvenile plumage, was shot on Breydon on September 29th (E. C. Saunders), and one, more happy in its choice of a resting place, was seen on Cley Marsh between October 20th and 23rd (Miss M. Barclay).

BLACK-WINGED STILT (*Himantopus h. himantopus*).—Two were seen at Hickling on May 24th (J. Vincent).

AVOCET (*Recurvirostra avosetta*).—A single bird was seen on Salthouse Broad almost daily from June 7th until July 4th. About the middle of September, two again appeared at Salthouse, one of which left in a few days, the other remaining until October 13th.

BLACK-TAILED GODWIT (*Limosa l. limosa*).—As usual, a few Black-tailed Godwits put in an appearance at both spring and autumn migration seasons, the following examples being identified:—One at Hickling on April 28th (J. Vincent). One at Cley on June 16th (Kingsbury). Two at Salthouse on August 20th (R. M. Garnett). One on Breydon on August 21st (T. H. Harrison). One at Cley on September 2nd (E. C. Arnold). Two at Cley on September 28th (L. Lloyd). Three at Cley on October 5th; and one at Cley on November 12th (Garnett).

COMMON CURLEW (*Numenius a. arquata*).—A remarkable migration of Curlews occurred on June 25th and 26th. Throughout almost the whole of these two days flocks were passing N.W. over Hickling (J. Vincent), while at Kelling and Salthouse they were travelling west along the coast-line (R. M. Garnett and W. Bishop). Flocks of apparently non-breeding Curlews are often present on our coast-line throughout the summer, but a migration on such a scale at this season of the year is difficult to understand.

BLACK TERN (*Chlidonias n. niger*).—A few Black Terns, as usual, appeared during both the spring and autumn migration. The largest number was reported on August 22nd, when fourteen were counted by Mr. T. H. Harrison passing west at Blakeney Point between 3 and 4 p.m.

SANDWICH TERN (*Sterna s. sandvicensis*).—The number of pairs breeding at Blakeney Point this year was estimated to be over 1,000. 271 nests were counted at Salthouse, but Scolt Head for the past two seasons has been practically deserted.

ROSEATE TERN (*S. d. dougallii*).—Two pairs of Roseate Terns again bred in one of the Tern colonies, and both nests hatched off successfully.

GREAT SKUA (*Stercorarius s. skua*).—Three were seen off Scolt Head on August 26th (T. H. Harrison), and one off Cley on September 27th (H. F. Witherby).

LITTLE AUK (*Alle alle*).—During the last two months of the year, a period of frequent gales, a considerable immigration of Little Auks took place, the first arrival being seen by Mr. R. M. Garnett at Cley on November 2nd. On December 29th one was picked up on Muckleburgh Heath (R. M. Garnett); on the 30th another in a garden in Norwich (S. H. Long); and on 31st twenty-eight were counted passing west at Cley (R. M. Garnett).

SPOTTED CRAKE (*Porzana porzana*).—One was flushed on Roydon Fen on May 12th (N. Tracy), and another at Hickling on October 21st (J. Vincent).

QUAIL (*Coturnix c. coturnix*).—On May 15th a Quail was picked up dead under telegraph wires at Helhoughton (A. H. Patterson). Two pairs were both heard and seen in some grass-fields near Mundesley throughout June, but on these fields being mown at the end of the month they disappeared, and no nest was discovered (A. Dalison). On November 4th one was shot at Hunstanton.

BIRD-TRAPPING IN A SUBURBAN GARDEN.

BY

D. L. COLLENETTE.

THERE must be a number of readers of *British Birds*, who, spending their days at work in a large town, have hitherto limited their bird-ringing activities to nestlings.

These notes are descriptive of bird-trapping during 1928-29 in a garden at Woodford Green, Essex, some nine miles from Charing Cross. The traps in use cost less than 10s., and were set on a lawn near the house. The actual time spent in trapping the birds was usually limited to two or three hours on a Sunday, reading or letter-writing in a window overlooking the lawn, with an occasional excursion outside to ring a bird and reset the trap.

FIG. 1.

Two makes of trap were used. The net-trap illustrated in Fig. 1 can be obtained for 1s. 6d. from dealers, and it is unnecessary to explain its construction. The springs which actuate it will stand exposure in the open air for a whole winter, but are then too weak for use in a second season. Supplied as part of the trap is a small metal plate on which to rest the bait. An improvement on this device is to place the bait (when of sufficient size) between the edge of the plate and the ground, so that a single peck from a bird will cause it to slip and release the spring. In frosty weather the plate is very liable to become frozen to the wire cross-piece, and to obviate this it is worth while to substitute for the

plate a piece of stiff wire, coiled once round the cross-piece, one end hooked over the trigger, the other end (of sufficient length to give it weight to fall) placed on the bait.

The cage trap illustrated in Fig. 2 was constructed at home, and measures 5 ft. long, 2 ft. high and 2 ft. broad. In a former season a smaller size was used, but birds were rather shy of entering. One end is hinged from the top, and is propped open by a loose stick placed perpendicularly, from which a length of string is carried to the house and pulled to close the trap. On the base of the hinged end a narrow

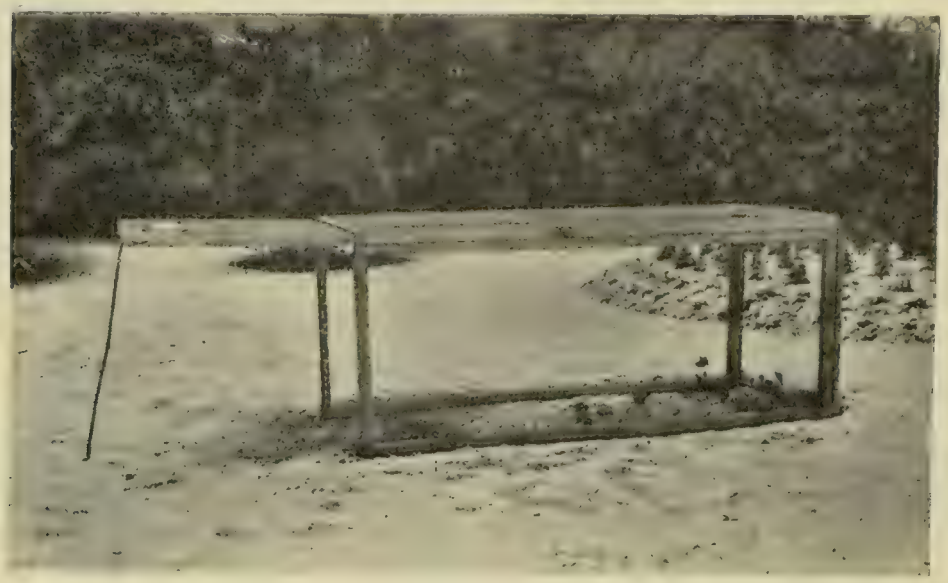

FIG. 2.

cylinder of wire netting is attached (not shown in the illustration) into which the trapped bird can be driven to be secured.

If food is thrown in and around the traps regularly each morning (the net-traps set in such a manner that they cannot be sprung) the birds will become used to feeding from them. When the observer has the leisure to attend, they can be set for action and several birds caught in a morning.

Various baits were experimented with, the best being small pieces of bread and half rotted apples. Bird-seed (in the cage-trap) attracted Chaffinches, but only during severe weather. The apples were especially tempting to Starlings, Thrushes and Blackbirds, the bread bringing Robins and Hedge-Sparrows in addition. An unexpected visitor was the Greater Spotted Woodpecker, taken on two occasions in a net-trap baited with bread, once in each of two seasons. A Moorhen, which had previously never been recorded from the garden, was also trapped with the aid of the same bait.

From October 28th, 1928, to April 14th, 1929, within a space somewhat larger than a tennis lawn, and using one cage-trap and either one, two or three net-traps, ninety-nine birds were caught of the following species:—Song-Thrush (11), Mistle-Thrush (2), Blackbird (12), Redwing (2), Starling (23), Robin (8), Hedge-Sparrow (3), Chaffinch (3), Greater Spotted Woodpecker (1), Moorhen (1), Great Tit (4), Blue Tit (23), Coal-Tit (1), House-Sparrow (5).

The figures in the list for the Song-Thrush, Blackbird, Robin and Hedge-Sparrow, probably represent a fairly complete total of the individuals which visited the garden, as it was unusual at the end of the season to see one of these birds without a ring.

Many of the birds entered the traps more than once, and the Blue Tits, by repeatedly springing the net-traps, were sometimes a nuisance, ten separate birds entering in a single morning. These were "marked" temporarily by snipping a short length from the tail. Rooks, Jackdaws and a Pied Wagtail were seen to inspect the bait, but were too suspicious to take it.

House-Sparrows entered the cage-trap fairly freely, and were usually allowed to leave again as they entered, which seemed to inspire confidence in other species. Their superior intelligence was very marked, for after being caught they would at once enter the wire cylinder and try to escape through it, while other birds usually had to be driven into it.

If, in taking a bird from a trap, it uttered alarm notes on being handled—which often happened in the case of Song-Thrush and Blackbird—birds of the same and other species would be noticeably shyer for an hour or two afterwards.

In the first half of the winter the cage-trap caught more birds than the net-traps, but after Christmas, when the weather was colder, birds entered the latter more freely. No bird was injured by either of them.

With the approach of the nesting-season and the increase of natural food the traps become of little use, but in the month of June a strawberry bed is a great attraction. If the plants are protected from the birds, net-traps placed near the bed and baited with the fruit are very effective. Fifteen Blackbirds, four Song-Thrushes, a male House-Sparrow (!) and an immature Robin were caught in this manner during the strawberry season of 1929 with very little expenditure of time.

RECOVERY OF MARKED BIRDS.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	ROOK (*Corvus f. frugilegus*).	
RR.7771	Near Ware (Herts.), 25.4.29, young, by J. D'eath.	Lakenheath (Suffolk), 9.11.29, by A. Hammond.
78949	Near Huddlesceugh Hall (Cumb.), 23.4.26, nestling, by R. H. Brown.	Lilburn (Northumb.), August, 1929, by J. W. Sale.
	MAGPIE (*Pica pica pica*).	
RR3824	Cloyne (Cork), 15.5.28, nestling, for Lond. N. H. Soc.	Where ringed, 20.2.30, by *Daily Express*.
	JACKDAW (*Colœus m. spermologus*).	
75447	Malvern (Worcs.), 16.6.28, ad., by P. E. A. Morshead.	Where ringed, 2.5.29, by ringer.
	STARLING (*Sturnus v. vulgaris*).	
W.5822	Broughty Ferry (Forfar.), 19.12.27, ad., by T. L. Smith.	Near Dundee, late August, 1929, by Mrs. J. Balharry.
V.8990	Ditto 1.4.28.	Where ringed 3.2.30, by D. Patterson.
Z.4270	Tentsmuir (Fife.), 13.6.25, young, by H. G. Watson.	Tayport (Fife.), 24.2.30, by E. Crapper.
V.3607	Dalston (Cumb.), 21.5.27, nestling, by R.H.Brown.	Newtown, Carlisle, 29.1.30, by T. C. Walton.
X.3904	Carlisle (Cumb.), 30.12.27, ad., by J. N. D. Smith.	Wooler (Northumb.), early March, 1930, by J. Hawkes.
T.6737	Staunton (Notts.), 28.2.29, ad., by F. K. Staunton.	Where ringed, 18.2.30, by ringer.
V.8563	Wilmslow(Ches.), 21.10.28, by E. Cohen.	Where ringed, 29.5.29, by ringer.
V.8551	Ditto 19.8.28.	Ditto 22.11.29.
V.8552	Ditto 11.9.28.	Ditto 17.4.29.
V.8572	Ditto 9.10.28.	Ditto, 6.1.30, by T. Wellens.
V.8432	Ditto ad., 22.5.28.	Ditto, 6.1.30, ditto.
V.8570	Ditto 12.9.28.	Ditto, 30.5.29, by ringer.
Y.3775	Near Chichester (Sussex), 24.1.27, ad., by R. Carlyon-Britton.	Ditto 1.3.29.
Y.3783	Ditto 9.2.27.	Ditto 3.1.29.
Y.3792	Ditto 13.2.27.	Ditto 16.2.29.
Y.3797	Ditto 15.2.27.	Ditto 13.3.29.
W.6086	Ditto 19.12.27.	Ditto 16.7.29.
W.6084	Ditto 13.12.27.	Ditto 7.1.29.
W.6090	Ditto 30.12.27.	Ditto 10.1.29.
T.2587	Woodford Green (Essex), 27.2.29, ad., for Lond. N. H. Soc.	Where ringed, 14.7.29, by C. L. Collenette.
W.4411	Ditto 30.12.28.	Near Woodford (Essex), 28.1.30, by P. Thompson.
W.2371	Bruton (Som.), 28.2.29, ad., for L.N.H.S.	Sherborne (Dorset), 31.7.29, by P. W. Stone.

No.	Place and Date Ringed.	Place and Date Recovered
	STARLING (*continued*).	
V.7620	Oxford, 20.12.27, ad., for Oxford Orn. Soc.	Wantage (Berks.), 3.12.29, by C. E. Abbott.
Y.9778	Bluntisham (Hunts.), 23.12.25, ad., by E. Peake.	Where ringed, 6.7.29, by ringer.
T.3462	Near Chichester (Sussex), 6.1.29, ad., by W. D. Shaw.	Where ringed, August, 1929, by A. Wallace.
T.5787	Brighton (Sussex), 26.2.29, ad., by C. W. G. Paulson.	Findon (Sussex), 8.3.30, by R. Essex.
Y.7193	Dorney, (Bucks.), 11.5.25, nestling, by A. Mayall.	Huntercombe (Berks.), 24.10.29, by Capt. A. H. Vivian.
X.1022	Eton (Bucks.), 18.1.26, ad., by A. Mayall.	Chalvey, near Slough (Bucks.), 16.1.30, by J. Bennett.
X.2642	Near Gt. Budworth (Ches.), 15.12.25, ad., by A. W. Boyd.	Near where ringed, 19.10.29, by G. Gibbons.
T.4187	Ditto 5.1.29.	Norrevang, Skelund, Denmark, 1.5.29 (breeding), by P. Skovgaard.
T.5910	Hemsby (Norfolk), 27.2.29, ad., by J. M. Ferrier.	Near Bruges, Belgium, 10.11.29, by Director Musée R. d'Hist. Nat. de Belgique.
V.6274	Beckenham (Kent), 17.2.29, ad., for Lond. N. H. Soc.	Trzebiechowo, Poland, about October, 1929, by Postmaster.
V.9316	Carlisle (Cumb.), 28.1.29, ad., by J. N. D. Smith.	Broufors, Värmland, Sweden, March, 1929, by K. Segerlof.
X.3919	Ditto 1.1.28.	Farum, Sjœlland, Denmark, 14.10.29, by Miss E. Kristensen.
	GREENFINCH (*Chloris c. chloris*).	
G.6653	Near Gt. Budworth (Ches.), 7.7.28, ad., by A. W. Boyd.	Where ringed, 19.5.29, by ringer.
H.3788	Ditto 23.12.28.	Ditto, three times Jan., 1929, 16.5.29.
H.3772	Ditto 22.12.28.	Ditto 19.5.29.
H.3957	Ditto 10.2.29.	Ditto 5.7.29.
H.3810	Ditto 4.1.29.	Ditto 17.5.29.
H.3890	Ditto 26.1.29.	Ferryhill (Durham), Feb., 1930, by R. Lee.
D.4203	Near Branscombe (Devon), 15.1.26, ad., by P. E. A. Morshead.	Where ringed, 11.1.30, by ringer.
G.2622	Oxford, 22.4.28, ad., for Oxford Orn. Soc.	Near where ringed, late March, 1929, by A. E. Veale.
H.4490	Branscombe (Devon), 10.1.29, ad., by P. E. A. Morshead.	Where ringed, 13.1.30, by ringer.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	GREENFINCH (*continued*).	
H.2682	Longwathby (Cumb.), June, 1929, young, by H. J. Moon.	Peacehaven (Sussex), 19.1.30, by R. L. Bush.
	CHAFFINCH (*Fringilla c. cœlebs*).	
D.4558	Rusland, Ulverston (Lancs.), 1.4.27, ad., by C. F. Archibald.	Where ringed, 10.1.29, by ringer.
TT.465	Near Chichester (Sussex), 27.9.28, ad., by R. Carlyon-Britton.	Where ringed, 16.4.29, by ringer.
H.6024	Battle (Sussex), 31.3.29, ad., by H. Whistler.	Where ringed, 7.3.30, by ringer.
F.9036	Near Gt. Budworth (Ches.), 6.4.28, ad., by A. W. Boyd.	Where ringed, 26.3.29, by ringer.
A.9345	Ditto 24.2.24.	Ditto 15.11.25 ; 27.3.29.
D.5118	Ditto 13.5.26.	Ditto March, 1929.
F.8906	Ditto 16.11.27.	Ditto 20.5.28 ; 18.5.29.
	TREE-SPARROW (*Passer m. montanus*).	
F.1177	Near Gt.Budworth (Ches.), 16.5.27, ad., by A. W. Boyd.	Where ringed, 9.8.29, by ringer.
	YELLOW BUNTING (*Emberiza c. citrinella*).	
G.6595	Near Gt.Budworth (Ches.), 18.6.28, ad., by A. W. Boyd.	Near where ringed, 15.4.29, by ringer.
D.5251	Ditto 12.6.26.	Ditto 9.6.29.
F.8876	Ditto young, 25.7.27.	Ditto 31.5.29.
F.8912	Ditto ad., 30.11.27.	Ditto 11.6.29.
F.9079	Ditto 17.5.28.	Ditto 30.6.29.
F.9078	Ditto 16.5.28.	Ditto 4.6.29.
F.9020	Ditto 8.3.28.	Ditto 17.5.28 ; 17.7.28, 29.6.29, by ringer.
G.6578	Ditto young, 14.6.28.	Ditto 15.3.29 ; 24.6.29, by ringer.
H.3878	Ditto ad., 22.1.29.	Ditto 21.5.29.
	REED-BUNTING (*Emberiza s. schœniclus*).	
G.5023	Wilmslow (Ches.), 24.3.28, by E. Cohen.	Where ringed, 30.4.28, 17.1.29, 26.2.29, by ringer.
F.7209	Ditto 11.3.28.	Ditto 19.3.29.
G.5077	Ditto 3.12.28.	Ditto 24.11.29.
	TREE-PIPIT (*Anthus t. trivialis*).	
E.6949	Dalston (Cumb.), 28.6.26, nestling, by R. H. Brown.	Nelas, N. Portugal, Sept., 1929, by *Seculo* and P. F. Leith.
	MEADOW-PIPIT (*Anthus pratensis*).	
F.4746	Near Skirwith (Cumb.), 29.5.27, nestling, by R. H. Brown.	Cap Breton (Landes), France, 25.9.29, by C. Montitons.
G.5312	Newchurch in Pendle (Lancs,), 3.9.29, nestling by D. F. Jospson.	Vieux - Boucau - les - Bains (Landes), France, 10.10.29, by A. Maque.

No.	Place and Date Ringed.	Place and Date Recovered.
	PIED WAGTAIL (*Motacilla a. yarrellii*).	
H.4316	Kelling (Norfolk), 14.7.29, nestling, by R. M. Garnett.	Near Soustons (Landes), France, 13.10.29, by E. Portmann.
J.2503	Near Heywood (Lancs.), 7.6.29, young, by I. Whittaker.	Near Biarritz, France, 18.10.29, by P. Blanteuil.
	GARDEN-WARBLER (*Sylvia borin*).	
J.1819	Near Cumdivock (Cumb.), 12.6.29, nestling, by R. H. Brown.	Iholdy (Basses Pyrénées), France, 9.9.29, by Mrs. E. Hanna.
	WHITETHROAT (*Sylvia c. communis*).	
A.7425	West Byfleet (Surrey), 26.5.23, nestling, by L. E. Taylor.	Sernache do Bonjardine, Portugal, 4.10.29, by J. A. Chelho in *Seculo* and P. F. Leith.
	SONG-THRUSH (*Turdus ph. clarkei*).	
V.1532	Scone Estate, Perth, 21.4.29, nestling, by Lord Scone.	Where ringed, 21.1.30, by ringer.
V.4053	Near Dundee, 10.5.28, nestling, by E. C. Sharp.	Tomar, Portugal, 22.12.29, by W. G. van Leeuwen and *Seculo*.
X.7658	Kirkmahoe (Dumfries.), 24.4.27, nestling, by W. and A. B. Duncan.	Kilmaley, Ennis (Clare), Ireland, 12.1.30, by D. Cathey.
U.6331	Ditto 23.5.28.	Shaukill (Dublin), Ireland, 10.2.30, by Miss B. Whelan.
W.3062	Dalston (Cumb.), 15.6.26, nestling, by R. H. Brown.	Hollymount (Mayo), Ireland, 8.2.30, by P. Joyce.
S.1871	Penrith (Cumb.), May, 1929, young, by H. J. Moon.	Near Bolton (Lancs.), 6.9.29, by A. Holland.
V.7017	Kirkby Lonsdale (Westmorland), July, 1927, young, by H. J. Moon.	Near where ringed, April, 1929, by F. Bradshaw, per E. U. Savage.
T.5877	Grassington (Yorks.), 25.5.29, young, by C. W. G. Paulson.	Helmshore (Lancs.), 17.9.29, by J. Walker.
T.6014	Oundle (Northants.), 26.5.29, nestling, by A. W. Boyd.	Trevine (Pembs.), Xmas, 1929, by T. Bowen.
T.2510	Wokingham (Berks.), 25.5.29, young, by J. N. Fletcher.	Where ringed, 7.1.30, by ringer.
Z.4129	Swanmore (Hants.), 5.6.27, young, by M. Portal.	Ditto 30.9.29.
T.6925	Bruton (Som.), 13.5.29, young for Lond. N. H. Soc.	Genêts, Manche, France, 21.12.29, by M. Godier.
	BLACKBIRD (*Turdus m. merula*).	
V.8519	Dornoch (Sutherland), 9.7.28, ad., by E. Cohen.	Where ringed, 21.10.29, by A. I. Will.
V.8507	Ditto 2.7.28.	Ditto, 1.8.29, by ringer.
V.8026	Wilmslow (Ches.), 24.9.27, ad., by E. Cohen.	Ditto 30.6.29.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	BLACKBIRD (*continued*).	
W.5431	Near Gt.Budworth (Ches.), 17.12.27, ad., by A. W. Boyd.	Where ringed, 1.6.29, by ringer.
X.2432	Ditto 16.1.26.	Ditto, twice Dec., 1927, 5.3.29.
V.3572	Reading (Berks.), 23.7.27, ad., for Oxford Orn. Soc.	Where ringed, 30.7.29, by W. Stacey.
T.5202	Polegate (Sussex),31.12.28, ad., by W. A. Cadman.	Where ringed, August, 1929, by F. E. Pike.
T.5039	Malvern (Worcs.), 8.5.29, nestling, by P. E. A. Morshead.	Where ringed, 27.1.30, by ringer.
Y.9652	Ditto 28.5.28.	Ditto, 15.3.30, by E. H. Lee.
W.9556	Bluntisham (Hunts.), 30.5.27, young, by E. Peake.	Where ringed, 11.3.28, 14.5.29, by ringer.
T.1476	Staunton (Notts.),18.12.28, ad., by F. K. Staunton.	Where ringed, 18.2.30, by ringer.
W.8715	Hamsterley (Durham), 10.5.28, young, for Lt.-Col. G. P. Pollitt.	Willington (Durham), 4.8.28, by H. H. Watson.
76942	Ullswater (Westmorland), May, 1925, young, by H. J. Moon.	Where ringed, 13.1.30, by ringer.
W.6338	Penrith (Cumb.), May, 1927, young, by H. J. Moon.	Glenluce (Wigtown.), Feb., 1930, by A. Brown.
S.7603	Calvice (Perths.), 16.8.29, ad., by J. D'eath.	Blair Atholl (Perths.), 2.1.30, by R. M. Blair.
Z.4506	Helensburgh(Dumbarton.), 19.5.24, nestling, by T. Kerr.	Coalisland (Tyrone), Ireland, Dec., 1929, by J. Hughes.
	WHINCHAT (*Saxicola r. rubetra*).	
H.7408	Ingleton (Yorks.), June, 1929, young, by H. J. Moon.	Sesimbra, Portugal, late Sept., 1929, per *Seculo* and P. F. Leith.
	NIGHTINGALE (*Luscinia m. megarhyncha*).	
E.4610	Pyrford (Surrey), 14.6.26, nestling, by L. E. Taylor.	Leatherhead (Surrey), 20.8.29, by N. S. Brodie.
	REDBREAST (*Erithacus rubecula*).	
F.2730	Near Perth, 18.2.29, ad., for Lord Scone.	Where ringed, 22.1.30, by ringer.
H.1915	Wolsington (Northumb.), 19.5.29, nestling, by W. R. Philipson.	Near where ringed, 27.2.30, by G. Colman.
H.2980	Ullswater (Westmorland), 28.2.29, ad., by H. J. Moon.	Where ringed, 14.1.30, by ringer.
H.2880	Ditto 28.2.29.	Ditto 15.1.30.
H.2868	Ditto 27.2.29.	Ditto 15.1.30.
E.4229	Near Gt.Budworth,(Ches.), 7.11.26, ad., by A. W. Boyd.	Where ringed, 11.3.28; 8.3.29, by ringer.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	REDBREAST (*continued*).	
H.4522	Malvern (Worcs.), 12.2.29, ad., by P. E. A. Morshead.	Where ringed, late Jan., 1930, by T. H. Lee.
G.5093	Ditto 31.7.28.	Ditto, 27.9.28; 4.12.28; 6.5.29; 12.6.29, by ringer.
G.2241	Sidbury (Devon), 8.4.28, ad., by P. E. A. Morshead.	Where ringed, 22.8.29, by ringer.
H.7794	Near Bradninch (Devon), 14.4.29, ad., by J. M. Hepburn.	Ditto 11.1.30; 16.1.30.
H.7783	Ditto 27.4.29.	Ditto, 24.12.29, 11.1.30.
G.3824	Near Swanwick (Hants.), 10.1.29, ad., by C. R. Stonor.	Ditto 3.1.30.
G.6925	Church Stretton (Salop.), 11.9.28, ad., by W. A. Cadman.	Ditto 24.12.29.
H.4724	Wilmslow (Ches.), 14.6.29, young, by E. Cohen.	Ditto 18.11.29.
G.5039	Ditto ad., 22.4.28.	Ditto 9.1.29; 28.2.29.
G.5078	Ditto 10.10.28.	Ditto 17.1.29; 15.2.29; 29.4.29; 6.6.29.
B.4262	Bluntisham (Hunts.), 13.12.25, ad., by E. Peake.	Ditto 27.12.28; 12.6.29.
H.4542	Ditto 4.9.28.	Ditto, 27.12.28; 28.1.29; 12.8.29.
G.2381	Ditto 24.2.28.	Ditto 12.5.29.
D.2606	Near Chichester (Sussex), 5.3.27, ad., by R. Carlyon-Britton.	Ditto 31.12.27.
F.9300	Addlestone (Surrey), 20.1.28, ad., for Lond. N. H. Soc.	Where ringed, 16.8.28, 23.1.30, by P. A. D. Hollom.
F.4801	Near Leeds (Yorks.), 10.6.27, nestling, by K. W. Parkinson.	Near same place, 10.9.29, by Mrs. F. V. Sargent.
F.6875	Canterbury, (Kent), 6.5.28, young, for St. Edmund's School N.H.S.	Where ringed, 15.8.29, by J. Martin.
	HEDGE-SPARROW (*Prunella modularis*).	
F.7201	Wilmslow (Ches.), 4.2.28, by E. Cohen.	Where ringed, 5.4.28; 2.3.29, by ringer.
G.5070	Ditto 17.11.28.	Ditto 9.4.29; 4.5.29.
G.5074	Ditto 20.10.28.	Ditto 5.4.29.
G.2332	Ditto young, 30.8.27.	Ditto, 23.11.27; 3.12.27; 6.1.29.
G.5020	Bowness (Westmorland), 7.4.28, ad., by E. Cohen.	Ditto 7.4.29.
H.3731	Near Gt. Budworth, (Ches.), 29.9.28, ad., by A. W. Boyd.	Ditto, 4 times Dec., 1928, 5.1.29; 16.5.29.
J.1055	Malvern (Worcs.), 10.7.29, juv., by P. E. A. Morshead.	Where ringed, 8.3.30, by C. K. Knowles.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	SWALLOW (*Hirundo r. rustica*).	
SV.300	Near Gt. Budworth (Ches.), 19.7.28, nestling, by A. W. Boyd.	Weaverham (Ches.), 17.8.29, by G. Owen.
SU.727	Carmyllie, (Forfar), 4.7.27, young, by H. G. Watson.	Forfar, 18.8.29, by J. Howat.
	MARTIN (*Delichon u. urbica*).	
TX.290	Marlborough (Wilts.), 13.7.29, young, by N. T. Walford.	Southbourne (Hants.), 28.10.29, by C. J. Gray.
	SAND-MARTIN (*Riparia r. riparia*).	
TY.104	Penybont (Radnor.), 15.8.29, nestling, by P. E. A. Morshead.	Nantes (Loire Inférieure), France, 16.9.29, by J. Quilfen.
	LITTLE OWL (*Athene n. vidalii*).	
73938	Near Wells (Som.), 13.6.29, young, by C. R. Stonor.	Near same place, 24.12.29, by C. Stippesley.
	TAWNY OWL (*Strix a. sylvatica*).	
23283	Rugby (Warwicks.), 15.5.26, nestling, by W. and A. B. Duncan.	Willoughby (Warwicks.), 19.12.29, by W. Warwick.
	KESTREL (*Falco t. tinnunculus*).	
RR.5328	Kirkconnel (Dumfries.), 27.6.28, nestling, by T. K. Craven and W. Bone.	Rutherglen (Stirling.), July, 1929, by J. Sutherland.
RR.5337	Ditto 27.6.28.	Leadhills (Lanark.), 4.12.29, by I. McArthur.
RR.5338	Ditto 25.6.29.	Near Biggar (Lanark.), 1.2.30, by W. Miller.
RR.6745	Near Eton (Bucks.), 22.6.28, young, by H. C. R. Gillman.	Near Bretteville l'Orgueille (Calvados), France, mid-March, 1929, by A. Lacour.
77616	Logiealmond Lodge, (Perths.), 6.6.26, nestling, by Lord Scone.	Abercailny Crieff (Perths.), early Oct., 1929, by ringer.
RR.7310	Near Hastings (Sussex), 27.6.29, nestling, by E. Wood and B. Brooker.	Near Beachy Head (Sussex), 14.10.29, by W. T. Morgan
	SPARROW-HAWK (*Accipiter n. nisus*).	
RR.1938	Welton (Cumb.), 27.6.29, nestling, by R. H. Brown.	Carlisle (Cumb.), 29.10.29, by I. Harris.
RR.2071	Holt (Norfolk), 16.7.28, young, by A. P. Meiklejohn.	Warham (Norfolk), 4.2.30, by R. Everritt.
	HERON (*Ardea c. cinerea*).	
104551	Balmoral (Aberdeen.), 16.5.29, nestling, by Mrs. Mackenzie.	Near Delnadamph, Strathdon (Aberdeen.), Oct., 1929, by Col. Sir A. Grant, Bart.

No.	*Place ana Date Ringed.*	*Place and Date Recovered.*
	HERON (*continued.*)	
105297	Kirkconnel (Dumfries.), 8.5.29, nestling, by T. K. Craven and W. Bone.	Leadhills (Lanark.), late Feb., 1930, by I. Arthur.
104628	Near Uldale (Cumb.), 29.4.28, nestling, by R. H. Brown.	Near Bathgate (W. Lothian), 25.2.30, by W. Pennycook.
106565	Ditto 27.6.29.	Union Mills (I. of Man), 18.1.30, by P. G. Ralfe.
100867	Buscot, Faringdon (Berks.), 12.5.29, young, by C. J. D'eath.	Blockley (Worcs.), 8.12.29, by J. Roper.
104157	Ditto, 12.5.29, young, by E. D. E. Andrews.	Towyn (Merioneth.), early Nov., 1929, by F. Howarth.
106354	Henley (Bucks.), 4.5.29, young, for Lt.-Col. G. P. Pollitt.	Near Fordingbridge (Hants.), 22.7.29, by Col. O. H. Channer.
106295	Ditto 6.5.29.	Rehins, Ballina, Ireland, late Sept., 1929, by C. B. Moffat and *Irish Times*.
	SHELD-DUCK (*Tadorna tadorna*).	
37608	Ainsdale (Lancs.), 28.6.20, young, by H. W. Robinson.	Walney Is. (Lancs.), 27.1.30, by D. Dick.
	MALLARD (*Anas p. platyrhyncha*).	
AA.804	Leswalt (Wigtown.), 6.3.29, ad., by M. Portal.	Where ringed, 6.2.30, by ringer.
AA.817	Ditto ditto.	Ditto, early March, 1930.
AA.820	Ditto ditto.	Ditto ditto.
27000	Ditto 18.1.29.	Ditto ditto.
26988	Ditto ditto.	Stranraer (Wigtown.), end Oct., 1929, by H. G. C. Bailey.
26985	Ditto 18.1.29.	Glenluce (Wigtown.), Jan., 1930, by J. Hood.
25528	Ditto 6.3.29.	Near Stranraer (Wigtown.), 3.12.29, by ringer.
27533	Almondbank (Perths.), 26.7.28, juv., by Lord Scone.	Near where ringed, 9.1.30, by ringer.
	TEAL (*Anas c. crecca*).	
78311	Longtown (Cumb.), 19.9.25, ad., by Sir R. Graham.	Grumsfjord (Värmland), Sweden, 28.8.29, by Prof. Einar Lönnberg.
78428	Ditto 6.1.26.	River Kuloi, Archangel Gulf, Russia, early May, 1929, by B. Stegmann.
RR.8165	Ditto Feb., 1929.	Near Upsala, Sweden, May, 1929, by Prof. Einar Lönnberg.
783?0	Ditto Autumn, 1925.	Cley Marshes (Norfolk), 28.10.29, by C. McLean.
79118	Leswalt (Wigtown), 10.2.29, ad., by M. Portal.	Where ringed, 20.11.29, by ringer.
79117	Ditto 10.2.29.	Ditto 28.10.29.

No.	Place and Date Ringed.	Place and Date Recovered.
	WIGEON (*Anas penelope*).	
79964	Loch Leven (Kinross.), 21.5.27, young, by Lord Scone.	Omutninsk, Novgorod, Russia, late Sept., 1929, by H. Kear.
	CORMORANT (*Phalacrocorax c. carbo*).	
106438	Dulas Bay (Anglesey), 11.7.29, young, for Lt.-Col. G. P. Pollitt.	Windermere Lake (Westmorland), 23.1.30, by W. T. Rigby.
106373	Ditto 11.7.29	Morecambe (Lancs.), 26.12.29, by H. W. Robinson.
106422	Ditto 11.7.29.	Poole (Dorset), 6.12.29, by A. F. Masters.
106380	Ditto 11.7.29.	Near Gunnislake (Cornwall), 23.1.30, by T. S. Bliss, per E. J. Allen.
106372	Ditto 11.7.29.	Iles de Glénans (Finistère), early Jan., 1930, by Director Office Sci. et Tech. des Pêches Maritimes.
106430	Ditto 11.7.29.	Painboeuf (Loire-Inférieure), 2.11.29, by F. Bouillard.
106440	Ditto 11.7.29.	R. Astillero, (Santander,) Spain, 23.2.30, by R. L. Shallcross.
102205	Mochrum (Wigtown.), 22.6.29, young, by Lord D. Crichton-Stuart.	Near Stranraer (Wigtown.), 12.12.29, by W. Watt.
102224	Ditto 22.6.29.	Solway Firth, late Oct., 1929, by J. McGill.
102201	Ditto 22.6.29.	R. Irvine (Ayr.), 22.2.30, by D. Patterson.
102339	Ditto 25.6.29.	Menai Straits, 27.11.29, by Miss C. Roberts.
102245	Ditto 22.6.29.	Newport (Mon.), 14.9.29, by Major B. D. Corbet.
102222	Ditto 22.6.29.	Poole Harbour (Dorset), 26.12.29, by H. Kingslake.
102348	Ditto 25.6.29.	Near Wexford, Ireland, 23.11.29, by E. Booth.
102228	Ditto 22.6.29.	Portavogie (Down), Ireland, 8.9.29, by J. Longridge.
102305	Ditto 25.6.29.	Ardfinnan (Tipperary), Ireland, 2.11.29, by R. Hackett.
102200	Ditto 22.6.29.	Clandeboye (Down), Ireland 24.1.30, by J. Halliday.
102346	Ditto 25.6.29.	Binic (Cotês du Nord), France, 21.10.29, by G. Verry.
102349	Ditto 25.6.29.	Guettehou (Manche), France, 22.9.29, by P. Enquebecq.
102350	Ditto 25.6.29.	Odet, Brittany, 1.10.29, by C. Sanerwein.
102344	Ditto 25.6.29.	Estuary R. Ribadeo (Lugo), Spain, 28.12.29, by Vizconde de la Armeria.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	CORMORANT (*continued*).	
102312	Ditto 25.6.29.	R.Guadiana,Elvas(Alemtejo) Portugal, 28.10.29, by L. Antunes, P. F. Leith and A. H. Reynolds.
	SHAG (*Phalacrocorax a. aristotelis*).	
21 Birds.	Sound of Harris (O. Hebrides), 1 and 2.7.29, nestlings, by E. C. Sharp.	Harris, N. and S. Uist, Barra, Skye and west coast Ross., 28.8.29 to 23.1.30.
104357	Handa (Suth.), 25.6.28, ad., by E. C. Sharp.	Loch Carron (Ross.), 23.12.29, by J. Allan.
101404	Edrachillis Bay (Suth.), 6.7.27, nestling, by W. and A. B. Duncan.	Maidens (Ayr.), March, 1930, by Mrs. H. Rogers.
102515	Treshnish Islands (I. Hebrides), 7.6.27, ad., by W. and A. B. Duncan.	Ulva Ferry, Mull, 2.2.30, by A. MacColl.
	OYSTER-CATCHER (*Hæmatopus o. ostralegus*).	
RR.9985	Kirkbride Marsh (Cumb.), 7.7.29, nestling, by R. H. Brown.	Heswall (Ches.), 27.12.29, by T. A. Coward.
26015	Rockcliffe Marsh (Cumb.), 2.7.25, nestling, by R. H. Brown.	Morecambe Bay (Cumb.), 5.2.30, by W. Burrow.
RR.2792	Eynhallow,Orkney,31.5.29, young, by D. J. Robertson.	Westport (Mayo), Ireland, 12.2.30, by B. Kerrigan.
	LAPWING (*Vanellus vanellus*).	
41271	Flichity (Inverness.), 4.6.27, nestling, by T. A. Coward.	Near Mogeely (Cork), Ireland, 13.2.30, by J. T. Harte.
T.1069	Glenorchard (Stirling.), 17.6.29, young, by J. Bartholomew.	Listowel (Kerry), Ireland, 21.11.29, by S. Hilliard.
58937	Ditto 14.6.23.	Newtonards (Down), Ireland, 28.2.30, by D. E. Alexander.
X.7400	Ditto, 9.5.29, by A. Scott.	Maryhill, Glasgow, 21.2.30.
W.9747	Glen Fruin (Dumbarton.), 15.6.27, young, by T. Kerr.	Cardross (Dumbarton.), 20.11.29, by J. Thomson.
S.3641	Kilmacolm (Renfrew.), 29.6.29, young, by Mr. and Mrs. R. O. Blyth.	Burntcourt (Tipperary), Ireland, 30.12.29, by T. Lyons.
S.3650	Ditto 5.7.29.	Adare (Limerick), Ireland, early March, 1929, by J. Shier.
S.3651	Ditto 6.7.29.	Ballinamona (Limerick), Ireland, 9.2.30, by W. Donovan, per M. Condon.
T.7243	Newtonairds (Dumfries.), 2.5.29, young, by Lord Scone.	Levignacq (Landes), France, 19.11.29, by S. Duvignau.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	LAPWING (*continued.*)	
S.8014	Otterburn (Northumb.), 9.7.29, young, by H. R. McConnel.	Near Palavas (Herault), France, 29.12.29, by F. Ayma.
T.8292	Penrith (Cumb.), May, 1929, young, by H. J. Moon.	Near Carlisle, early Jan., 1930, by T. Stamper.
S.1949	Ditto June, 1929.	Solway Firth (Cumb.), 12.11.29, by T. Hodgson.
97850	Near Matterdale (Cumb.), 15.6.29, young, by M. H. Greg.	Balig, Kerrick (Kirkcudbright.), 24.11.29, by J. Twinane.
U.5181	Ingleton (Yorks.), May, 1928, young, by H. J. Moon.	Ballyglunin (Galway), early March, 1930, by P. J. McHugh.
W.5281	Near Gt.Budworth(Ches.), 21.5.27, nestling, by A. W. Boyd.	Little Legh (Ches.), 15.2.30, by N. D. Pullen.
V.2153	Laugharne(Carm.),28.4.29, young, by J. F. Thomas.	Where ringed, 23.12.29, by Mr. Gwyther, per ringer.
	REDSHANK (*Tringa t. totanus*).	
U.7991	Glenorchard (Stirling.), 7.6.29, young, by R. Dingwall.	Donabate (Dublin), 23.11.29, by A. C. Kingston.
H.9210	Glenorchard (Stirling.), 14.6.29, young, by J. Bartholomew.	Near Newtownards (Down), 25.1.30, by H. C. Patterson.
T.2429	Rockcliffe Marsh (Cumb.), 2.6.28, nestling, by R. H. Brown.	Near Harlech (Mer.),15.1.30, by Lord Harlech.
	CURLEW (*Numenius a. arquata*).	
25837	Settle (Yorks.),April, 1929, young, by H. J. Moon.	Dundrum (Belfast), Ireland, Dec., 1929, by J. Scott Dove.
	SNIPE (*Capella g. gallinago*).	
W.7461	Loch Leven (Kinross.), 11.5.27, young, by Lord Scone.	Near Croom House (Limerick), Ireland, 17.12.29, by E. T. Whitehead.
U.1347	Lincluden (Kirkcudbright.), 22.5.28, young, by Lord Scone.	Castle Douglas (Kirkcudbright.), 28.9.29, by E. Studd.
V.2183	Tiree (I. Hebrides),18.6.27, young, by Lt.-Col. G. P. Pollitt.	Where ringed, 16.9.29, by Mrs. R. M. Hawker.
V.3869	Ditto 26.5.27.	Where ringed, 15.11.29, by Major P. Macintyre, per M. Portal.
T.2827	Stonebridge (Warwicks.), 28.5.29, nestling, by P. K. Chance.	Near Birmingham, 26.9.29, by W. J. Edkins.
W.1936	Near Ulverston (Lancs.), 31.5.29, young, by H. S. Greg.	Penicuik (Midlothian), 21.11.29, by R. Warden.
S.3041	Ramsbury (Wilts.),29.6.29, young, by N. T. Walford.	Where ringed, 31.1.30, by Admiral E. Hyde Parker.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	WOODCOCK (*Scolopax r. rusticola*).	
79186	Kinfaun's (Perths.),4.6.29, young, by W. Davidson.	Inchture (Perths.), 13.12.29, by J. Cuthbert.
X.4222	Lynedoch (Perths.),4.5.26, nestling, by Lord Scone.	Ochil Hills (Perths.), 9.11.29, by Major C. F. Drew.
U.6030	Dunblane (Perths.),24.6.29, nestling, by Lord Scone.	Near where ringed, mid Sept., 1929, by Hunter and Warren.
U.1084	Scone Estate (Perths.), 3.5.29, nestling, by Lord Scone.	Near Perth, 14.12.29, by Col. P. C. Macfarlane.
W.7001	Murthly (Perths.), 25.4.27, young, by Lord Scone.	Oortmalle, near Antwerp, Belgium, 9.11.29, by Mons. Bogaerts.
U.1081	Scone Estate (Perths.), 22.4.29, nestling,by Lord Scone.	Near Nantes (Loire-Inférieure), France, 6.12.29, by P. Aubron.
X.4733	Bowhill (Selkirk.),25.6.26, nestling, by Lord Scone.	Roxboro (Limerick),1.11.29, by G. A. O'Farrell.
T.7223	Arbigland(Kirkcudbright.), 8.6.29, nestling, by Lord Scone.	Dalbeattie (Kirkcudbright.), 19.12.29, by Capt. P. G. Barton.
U.1414	Auchen Castle (Dumfries.), 6.5.28, young, by Lord Scone.	Moffat (Dumfries.), 19.11.29, by W. R. Younger.
W.3814	Buchlyvie (Stirling.),1.5.28, young, by Sir S. Bilsland.	Near Ballymena (Antrim), Ireland, 21.11.29, by J. Matthews.
U.7750	Holker (Lancs.), 17.6.29, young, by Col. Porritt.	Where ringed, 25.1.30, by ringer.
W.6011	Ditto 11.5.28.	Kirkby Lonsdale (Westmorland), 8.11.29, by W. Dobson, per *Shooting Times*.
U.7757	Ditto 20.5.29.	Abbots Reading (Lancs.), 30.11.29, by J. M. Marshall.
V.9865	Swynnerton (Staffs.), 6.5.28, young, by Lord Stafford.	Shifnal (Salop.), 31.12.29, by Earl of Bradford.
	SANDWICH TERN (*Sterna s. sandvicensis*).	
V.5659	Blakeney Point (Norfolk), 30.6.28, young, by A. W. Boyd.	Mossamedes, Portuguese West Africa, Dec., 1928, or Jan., 1929, by P. Skovgaard for E. M. Torres.
	BLACK-HEADED GULL (*Larus r. ridibundus*).	
76300	Near Chichester (Sussex), 21.2.29, ad., by R. Carlyon-Britton.	Near where ringed, 25.2.30, by A. J. Cozens.
	PUFFIN (*Fratercula a. grabæ*).	
RR.5575	Skomer Island (Pembs.), 2.7.28, ad., for Lond. N. H. Soc.	Arcachon, France, end Dec., 1929, by Syndicat D'Initiative.

BIRDS MARKED ABROAD AND RECOVERED IN THE BRITISH ISLES.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	STARLING (*Sturnus v. vulgaris*).	
Vogelwarte, Rossitten, Germania. 46980.	Rossitten, Germany, 31.7.27.	Douglas, Isle of Man, 17.12.28, by H. W. Madoc.
Ditto T.52573	Ditto 8.7.28.	Hove (Sussex), late Feb., 1929, by J. P. de Mey.
P. Skovgaard, Viborg, Danmark. H.1942	Near Viborg, Denmark, 30.5.24.	East Boldon (Durham), 20.2.29, by J. E. Walker
Ditto G.7399	Ringenus, N.E. of Flensburg, Schleswig, 5.6.28.	Plas Newydd (Anglesey), 26.3.29, by K. Orton.
Zool. Stat. Helgoland. 533063	Heligoland, 25.10.27.	Aylsham(Norfolk),23.2.29, by C. Williamson per A. H. Patterson.
Ditto 532640	Ditto ditto.	Near Morpeth (Northumb.), 15.2.29, by J. R. Bell. Again released.
	BRAMBLING (*Fringilla montifringilla*).	
Museum, Leiden. 53333	Egmond-aan-Zee, Noord, Holland, 11.10.27.	Stonehouse (Lanark.), 5.1.29, by *Cage Birds*.
	FIELDFARE (*Turdus pilaris*).	
Stavanger Mus. 4048	Surendal, Nordmore, Norway, 7.6.29.	Mobberley (Ches.),21.2.30, by J. Riddick, per T. A. Coward.
	BLACKBIRD (*Turdus m. merula*).	
P. Skovgaard, Viborg, Danmark, H.6919	Fjerritslev, Jutland, 25.6.28.	Near Kesh (Fermanagh), Ireland, 1.3.29, by R. G. M'Gregor, per J. P. Burkitt.
	MALLARD (*Anas platyrhyncha*).	
Leningrad, Lesnoy Instit. D.1678	Lake Ilmen, Novgorod, Russia, 7.7.29.	River Wampool (Cumb.), 27.12.29, by T. L. Johnston.
	WOODCOCK (*Scolopax r. rusticola*).	
Museum Stockholm. A.2371	Jämtland, Sweden, 1.8.28.	Marble Hill (Galway), Ireland, 10.1.29, by J.D. O'Kelly, per *The Field*.
Ditto A.2919	Ditto juv., 27.6.29.	Co. Galway, 21.12.29, by A. L. Butler in *Field*.

No.	*Place and Date Ringed.*	*Place and Date Recovered.*
	WOODCOCK (*continued*).	
Museum Stockholm A.2130	Jätmland, Sweden, 1.6.28.	Loch Rannoch (Perths.), 11.12.28, per *The Field*.
	BLACK-HEADED GULL (*Larus r. ridibundus*).	
Vogelwarte, Sempach, Helvetia. 5757	Near Lake Zurich, Switzerland, nestling, 2.6.28.	Woodford Bridge (Essex), 20.2.29, by J. Watt, per C. L. Collenette.
Museum Stockholm. A.3431	Lake Krankesjön, Scania, S. Sweden, 27.6.29.	Nr. Norwich (Norfolk), 11.10.29, byH. S. Dixon-Spain.
Mus. Goteborg, Sweden. 3871C.	Måläpper Island, Scania, S. Sweden, 17.6.26.	Staines Reservoirs (Middx.), 4.3.30, by A. Haslett, per Miss E. P. Leach.
	COMMON GULL (*Larus c. canus*).	
P. Skovgaard, Viborg, Danmark. K.1066	Dybsö, S. Sjælland, Denmark, 11.7.22.	Graffham (Sussex), 5.3.29, by C. H. Spurgeon and A. Landsborough Thomson.
Ditto X.7882	Glänö, S. Sjælland, 8.7.26.	Tetney Lock (Lincs.), Feb., 1929, by Mr. Priest, per J. Armitage.
Ditto K.6496	Ditto 19.7.27.	Near Whitstable (Kent), 9.1.29, by Miss F. K. Smith per S. Lewis.
Ditto X.7860	Ditto 6.7.26.	Holme-next-Sea (Norfolk), 15.2.29, by S. H. Long.
Ditto D.3513	Vröj, N.W. Sjælland, 4.7.27.	Briston (Norfolk), late Feb., 1929, by D. H. Robinson.
Tartu, Estonia, Universitas 3679	Tulpe, Baltic, 2.7.28.	Goole (Yorks.), March, 1929, by W. Ratten, per O. G. Pike.
Ditto 1883	Oesel, Baltic, 9.7.28.	St. Annes-on-Sea (Lancs.), Aug.-Sept., 1929, by H. W. Robinson.
Mus. Helsingfors, Finland. C.3938	Aland Island, Finland, 11.6.28.	Near Canterbury (Kent), 6.1.29, *Fauna et Flora Fennica*, 1929, p. 18.
Ditto C.4085	Ditto 16.6.28.	Faversham (Kent), Feb., 1929, *op.c.*, p. 19.
	NORTHERN GUILLEMOT (*Uria a. aalge*).	
Zool. Stat, Helgoland. 33988	Heligoland, 28.6.27.	Hayling Island (Hants.), 10.1.29, per *Country Life*.

NOTES

EARLY WHINCHAT IN SURREY.

It may be of interest to record that on the morning of March 9th, 1930, near Addington, Surrey, I watched a hen Whinchat (*Saxicola r. rubetra*) for about five minutes.

It was perched on a post at the side of a lane, and allowed me to approach to within thirty feet, where, through glasses, I had no difficulty in identifying it.

I have had considerable experience of this bird in Wales, but in the locality in question have previously only seen it on migration; but never as early before. Hubert E. Pounds.

[We have note of only one earlier spring record of the Whinchat, viz., March 6th, 1919, near Cholsey, Berkshire (E. E. Pettitt, *antea*, Vol. XII., p. 279).—Eds.]

ALPINE SWIFT IN DEVON.

On March 13th, 1930, I received by post from Mr. W. R. Leycester, of Ennisbeg, Newton Ferrers, S. Devon, a very fresh specimen, in good condition, of the Alpine Swift (*Apus melba*), with a letter stating that it had been picked up at 8 a.m. on March 11th, a few feet away from my correspondent's house.

This appears to be a very early date for this species, which is a rarity at any time in this country. David Seth-Smith.

OSPREYS IN LANCASHIRE.

On May 2nd, 1927, an Osprey (*Pandion haliætus*) was shot at Claughton-on-Lune, about six miles above Lancaster, and its quarry, a sea-trout of 1½ lbs., recovered.

Single Ospreys were also seen near the same place on May 8th, 1928, and October 27th, 1928, but were not molested, although both were fast in sea-trout.

H. W. Robinson.

TWO EARLY RECORDS OF MUTE SWAN IN BEDFORDSHIRE.

The following is an extract of a Charter, granted to Newnham Priory by William de Beauchamp, taken from *Registrum Cartarum Prioratus de Newenham* (Harl. MS. 3656, f. 8):—

THE GREAT CHARTER OF WILLIAM DE BEAUCHAMP.
[Undated.]

"To all sons of Holy Mother Church, present and to come: William de Bello Campo, greeting. Know . . . . that I . . . . . have given, granted, and by this present my charter have confirmed, to God and the church of St. Paul of Newenham, any my canons regular serving God there, and to their successors, the church of St. Paul, Bedford . . . .

"Item I have granted to them the whole of Golde(1) mill and the mill which is called of Bedford Castle, together with the new mill, which my father made there, with the places and ponds in which the said mills are built, and with the whole pond from the mills of Bedford Castle, together with the willows and trees growing therein, as far as Joel's pond (*stagnum Joelis*), to plant and to grub up (*assartandum*) and restore (*emendandum*) as often and whensoever they will, freely and quit of all lay service. [f. 8 b.] And I have granted to them that little meadow which lies eastwards of the mills of the Castle, which is called Castelham, and all the water with fishing (*piscacione*) and with all liberties and commodities to the said water pertaining, from the mills of Bedford Castle on the side of (*ex parte*) 'le Sele' and of the field of Goldyngton; and all the water from the mill of Joel of Bedford(2), on the side of the meadow of Fenlake, as far as the eastern head of the garden of the said canons and by (*juxta*) the fields of Goldyngton on either side of Swinholm; and Swinholm itself together with five acres of land which lie by (*iuxta*) Inland from the way of Fenlak, with an island the width of the same land, as far as the pond of the said canons, with all their appurtenances, freely and quietly from all lay service and exaction; so that no one may have entry [to] that water for fishing without seeking and obtaining their licence. And I have granted to them free entry and re-entry into the said my water with their vessels and boats for carrying whatever they will from the barns of Fenlak to Newenham, and from Newenham to Fenlak, at their will, when necessary. Item I have granted to them for the refreshment of infirm canons, licence to fish twice or three times in the week with nets or with other engines, if they wish, in all my water from the eastern head of their garden as far as the eastern head of the town of Fenlak. And the aforesaid canons shall let rove, swimming and nesting, as many as they wish of their swans, feeding and roving with their hens(3) and cygnets in all my common and several waters throughout the Ouse, from the lordship of the Barony of Eton as far as the lordship of the Barony of Wahull,(4) without challenge or contradiction from me or my heirs, forever. . . ."

Unfortunately, this Charter is undated. The original endowment of the Priory was by Simon de Beauchamp, father of William, who was Baron of Bedford from about A.D. 1165

(1) Goldington (J.S.E.).

(2) This may either mean the Bedford mill belonging to one Joel, or the mill belonging to one Joel de Bedford.

(3) Also translated "fledglings" by another transcriber.

(4) Odell (J.S.E.).

to A.D. 1206. In the account of the Religious Houses in the *Victorian County History of Bedfordshire*, it reads as though the right of keeping Swans was included in the first or one of the earlier Charters, but no references to Swans are mentioned before this Great Charter of William de Beauchamp, who was Baron from about 1206 to 1260. This Charter can be approximately fixed about A.D. 1210 to A.D. 1225, and I think we can assume that at that time the Mute Swan was of no recent introduction to this country.

In the Records of the alien Priory of Grove, near Leighton Buzzard (*Beds. Hist. Records*, Vol. 8, p. 28), in the sale of stock between Michaelmas 1341-42 are included "2 Swans sold in the Lady's household," 6s. Comparative values under the same heading occur, cows in winter, 5s. 4d. each, ox 12s., pigs 2s. 6d., Geese and Capons 2½d. each, so Swans seem very high priced by comparison. J. S. ELLIOTT.

EARLY RECORDS OF THE MUTE SWAN IN NORFOLK.

MR. ELLIOTT'S interesting find of the reference to Swan-keeping on the Bedfordshire Ouse in the Charter he quotes (*supra*), prompts me to draw attention to two others, of approximately the same date, that have not hitherto found a place in ornithological literature. Both are to be found in Blomefield's *History of Norfolk* and all three are about contemporaneous with the earliest extracts from the Close and Charter Rolls quoted in my paper on the "Early History of the Mute Swan" (Vol. XVII., p. 178) and afford further evidence of its distribution in England at this early period. The first Norfolk one occurs in a deed which Blomefield appears to have seen, and which he quotes in the course of his remarks on the manor of Cokesford in Kilverstone (Vol. I., p. 544):—

"In 1230, there was a dispute between Richard, Prior of Thetford, and William, Prior of Cokesford, concerning their separate fisheries belonging to their manors here; 'Concerning the use and propriety of all the fishing lying between the territory of Snareshill, and the territory of Kilverstone, the Prior of Thetford claiming the whole of the water or river from his mill, called Melford Mill, to the extent of his town of Snareshill,' *viz.*, the whole of Snareshill side, as belonging to his free fishery there, and this side as belonging to his manor here; but the Prior of Coxford having a free fishery to his manor here, claimed an equal share on this side; and it being proved to be so, the Prior of Coxford let his right for ever to the Prior of Thetford for 8s. a year. But the Prior of Coxford

reserved to himself his swan mark, belonging to his manor, throughout the whole river, with liberty to gather reed and grass at all times in the said river, with the consent of Richard, Bishop of Norwich"

The second concerns the Priory of Mirmound in the parish of Upwell. This was founded in the reign of Richard I. (1189-1199) by Sir Ralph Hauvyle, and was endowed by him with certain property in Upwell and Outwell. "Sir Thomas, his son and heir, confirmed the same, and granted liberty of pasture for four mares with their foals; also four couple of Swans, paying 5s. rent *per annum*" (*t.c.* Vol. VII., p. 477).

The first of the above references incidentally carries back our knowledge of the time during which Swan marks were used a further forty-six years. N. F. TICEHURST.

FURTHER NOTES ON EIDERS IN ORKNEY.

WITH reference to my notes on the breeding-habits of the Eider Duck (*Somateria m. mollissima*) (*antea*, pp. 26-30), the following supplementary observations made in 1929 may be worth publishing.

With reference to the incubation-period, an Eider laid her first egg on May 31st and one egg each day afterwards until June 5th. She began to sit on June 3rd, and all five eggs were hatched on June 29th (26 days). In the case of another nest, which was found with two eggs on June 1st and had four eggs on June 4th with plenty of down, there were four ducklings still in the nest in the forenoon of July 2nd, but the duck was not in sight. In the afternoon I again visited the nest but the ducklings were gone. In this case the incubation-period was not exactly ascertained, but could not have exceeded 28 days.

On June 4th I found an Eider sitting on her nest with three other ducks ("Aunts") sitting on the short heather beside her. They flew off, and on coming near the sitting duck I was surprised to see that she seemed all bedraggled as if she had been in oil or some similar substance. I did not disturb her, but went back next day and found a clean, rather light-coloured duck on the nest. I thought that she had cleaned herself very quickly, but on the 7th I saw on the beach, about 100 yards from the nest, a duck, all bedraggled, which ran down to the sea but appeared able neither to fly nor to swim easily. On the 9th my grandson found the same—or what seemed to be the same—bird dead a little way inland. Its feathers seemed to be coated with

some greasy substance. The other bird continued to sit and hatched out the eggs on June 13th.

On June 4th I found in the middle of a small colony of Herring-Gulls (*Larus a. argentatus*), on rough rock-strewn ground on the top of the cliffs, a Herring-Gull's nest with two Gull's eggs and three Eider's. There was no down in the nest and the eggs were not covered in any way. A third Gull's egg was lying beside the nest. I put it into the nest and left it. The eggs in the nest were warm but I saw no bird leave them. I returned on the 7th and was surprised to find an Eider Duck sitting on the nest. She rose, and I found four Eider's eggs and three Gull's in the nest. I visited the nest again on the 10th, when I found that all seven eggs had been taken by Gulls. The nest on the 7th was full of down. Every year I find a few Eider Ducks nesting in the Herring-Gulls' nesting places, but I have never before known eggs there to be taken, though if a duck leaves her nest uncovered on other parts of the island they are taken almost at once. D. J. ROBERTSON.

RED-THROATED DIVER IN MIDDLESEX.

UPON hearing that Mr. T. H. Harrisson and Mr. P. A. D. Hollom had found a Diver at Staines, but had been prevented by the bad light and distance from determining its species, I went to the reservoirs on May 4th and 5th, 1929. On both of those days I found the bird, which proved to be a Red-throated Diver (*Colymbus stellatus*) in full breeding-plumage. It stayed on the reservoirs for about six weeks, and was seen by many observers. Mr. Donald Gunn saw it for the last time on June 9th; on the 16th he failed to find it.

The Great Northern Diver (*C. immer*), was seen at Staines on Christmas Day, 1905, by Mr. Graham W. Kerr (*Zool.*, 1908, p. 142). Subsequently it was seen there in November, 1927, and again in November and December, 1929. The Black-throated Diver (*C. arcticus*) appeared there in December, 1927. But, although a bird, which was seen there some years ago by Mr. Holte Macpherson and Mr. J. Rudge Harding, too far off for identification, was thought by them with some confidence to be a Red-throated Diver, I believe this is the first occasion on which that species has been reported from Staines.

F. R. FINCH.

STONE-CURLEWS IN LANCASHIRE.

IN Mitchell's *Birds of Lancashire* there is no mention at all of the Stone-Curlew (*Burhinus œdicnemus*). In a report of "The Birds of Rochdale," one paragraph states that "One

was shot at Smallshaw Wood by Mr. R. Schofield of Dunnisbooth Farm, and is still in his possession." (Published 1913, Rochdale Museum). Mr. E. Brookfield, gamekeeper at Claughton-on-the-Lune, about six miles above Lancaster, who was brought up in Dorset, where he knew the species intimately, tells me that on March 17th, 1927, he was surprised to hear the call of Stone-Curlews, and that two passed close to him flying north-west by west. They were probably the two which I believe were seen on Solway not long afterwards.

H. W. ROBINSON.

LITTLE AUKS IN KENT.

I WAS at Dungeness from December 28th to 31st, 1929, and my visit coincided with an unusual invasion of Little Auks (*Alle alle*). The Dungeness watchers assured me that they had never seen so many. On the morning of the 28th, in calm weather and bright sunshine, a single Little Auk was swimming in the shallow water opposite Littlestone sandhills —the tide was in—and occasionally flying up and round about over the sands. I did not see any on the 29th, but I saw one fly past the point of Dungeness at midday on the 30th; and in the afternoon, in the course of an hour's walk, I saw eleven more, in lots of three, two, or single birds. Probably nearly all were different individuals, as all were flying west, close in to the beach, excepting one lot of three, that settled on the sea. I heard that about a dozen were seen near Littlestone on the same day, and they were again noticed off the point on the 31st. I saw one flying past at midday.

There were storms during the night of the 28th-29th and again in the morning of the 30th, but none of the Little Auks I saw showed clear signs of fatigue. H. G. ALEXANDER.

[Miss A. V. Stone, who was at Littlestone on December 31st, informs me that she saw at least six Little Auks, in the space of about a mile towards Dungeness.—N.F.T.]

EARLY CHIFFCHAFF IN DEVONSHIRE.—Mrs. D. A. MacAlister informs us that on March 1st, 1930, she watched a small warbler near Sidmouth, but, owing to its restlessness, could not be certain whether it was a Chiffchaff or Willow-Wren. On March 3rd Mrs. MacAlister found the bird at the same place and heard it utter the distinctive note of the Chiffchaff (*Phylloscopus collybita*).

COMMON BUZZARDS IN NORTH KENT.—Mr. F. Howard Lancum writes that on February 22nd, 1930, he saw a Common Buzzard (*Buteo buteo*) circling over Dartford Heath, and that on the 26th he saw it again at Wilmington, about a mile away, on this day in company with a second. He adds that he had not seen one in that district for fifteen years.

USE OF BRACKETS IN NOMENCLATURE.—As several correspondents have asked why the name of an author of a scientific name is sometimes enclosed by brackets and sometimes not, and as there seems a widespread misunderstanding on this point, it may be worth while to give here extracts from the International Rules of Zoological Nomenclature bearing on this question.

Article 22 states:—"If it is desired to cite the author's name, this should follow the scientific name without interposition of any mark of punctuation. . . ."

Article 23 states:—"When a species is transferred to another than the original genus or the specific name is combined with any other generic name than that with which it was originally published, the name of the author of the specific name is retained in the notation, but placed in parenthesis. . . ."

It may be remarked that if an original specific name is used as a subspecific name this does not affect the question, because Article 11 states "specific and subspecific names are subject to the same rules and recommendations, and from a nomenclatural standpoint they are co-ordinate, that is, they are of the same value."

To give examples, we may quote *Corvus corax corax* L. and *Fringilla montifringilla* L. without brackets, because Linnæus used these generic names in his original descriptions of these birds in the 10th edition of the Systema; *Pyrrhocorax pyrrhocorax* (L.) and *Passer domesticus domesticus* (L.) both with brackets, because the same author called the Chough *Upupa pyrrhocorax* and the House-Sparrow *Fringilla domestica*.

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ON THE WINTER DISTRIBUTION OF SOME SEA-BIRDS.

BY

R. O. BLYTH, M.A., F.Z.S., M.B.O.U.

A SEA voyage offers opportunities for noting the distribution of some of the more easily identified sea-birds; there is leisure, and the interest of fellow-passengers at the sight of each new species ensures that its presence will not be long overlooked. For this reason the following notes may be treated as giving a fairly accurate indication of the zones within which each species was found, during January and February, 1930, on a voyage to and from South Africa. The outward voyage was by way of Tenerife, Ascension and St. Helena; the homeward one was by the Mail Route, calling at Madeira. The thanks of the writer are due to many willing and zealous co-operators among his fellow-passengers and the ship's officers.

Adult Gannets (*Sula bassana*) were seen in the English Channel off Cherbourg on January 10th; also, on the homeward voyage, off Cape Finisterre on February 22nd, and south of Ushant on February 23rd, in each case near the coast. No Gannets were seen southward from Cape Finisterre until 240 miles south of the Canary Islands, latitude 24° 20′ N., longitude 16° 55′ W., when immature birds were met with on January 18th. The following day, for roughly 50 miles after passing Cape Blanco, very large numbers of immature birds were met with; the plumage of these birds was that described by J. H. Gurney as of the first two years. There were also a few adults. As the birds were passing the ship and crossing the course in groups of two, three or more birds, thirty or more frequently being in sight at once for fully four hours, many hundreds must have been passed in the narrow track which was observable from the ship as she steamed through the zone. Near Cape Verde, on January 20th, a small number of immature birds was seen, but few as compared with the numbers round Cape Blanco. On the return voyage none were seen off Cape Verde (the day was very hazy), but for thirty miles before Cape Blanco considerable numbers of immature birds were seen on February 18th, but none in fully adult plumage. Had the coast-line been followed, the width of the Cape Blanco zone of immature

birds might have proved to be greater than appeared to be the case. Both outwards and homewards the area between Cape Blanco and the Tropic of Cancer was traversed during the night and was therefore unobserved.

The Cape Gannet (*Sula capensis*) was met with much further from land, being picked up 120 miles from Cape Town, and roughly 90 miles from shore, on the southward voyage, and on the northward voyage it was last seen in latitude 29° 42′ S., longitude 14° 8′ E.—over 150 miles from land.

Fork-tailed Petrels, presumably the Madeiran form (*Oceanodroma castro*), were met with over a large area, usually as solitary individuals but occasionally in pairs. Sailing south it was found from latitude 24° N., longitude 17° W. (January 18th), to 14° S., 8° 20′ W. (January 27th). Returning north, a small Petrel, possibly of the same species, was met with 25° S., but it was some distance from the ship and seemed smaller; it was not until 10° S. (February 12th) that the species was definitely recognized as the same as that seen on the southward voyage. The birds are few and far between and difficult to pick up with the naked eye unless close to the ship. It was seen daily thereafter until Cape Verde was passed on February 17th. One was found on the ship on three successive nights. It appeared to be uninjured and was thought to be the same individual each night; it was no doubt dazzled by the lights of the ship and remained in hiding during the day, but no explanation why it should have remained on board during two successive days appears satisfactory. It seemed quite without fear when examined by the passengers and refused to fly off our hands when held over the ship's rail. When placed on one of the ships' boats it cowered before the light and in a few minutes was once more found upon the navigating bridge, proving that it was not unable to fly.

The Great Shearwater (*Puffinus gravis*) was noticed only once—one day out from Cape Town.

Sooty Shearwaters (*Puffinus griseus*) were seen frequently between 25° and 30° S. latitude on February 1st, 2nd, 3rd, 8th and 9th.

The Wandering Albatross (*Diomedea exulans*) was first met with about 29° S. On the homeward journey it was very numerous between 31° and 29° S., when as many as 30 were round the ship at one time. Four followed the ship until nightfall of the next day, when we were 24° S.

A Curlew (?*Numenius arquata*) was circling round the ship on January 21st, in 10° 4′ N. latitude, 17° 17′ W. longitude—that is, 200 miles from land. It was rather far off for satisfactory identification when seen by the writer, but the attention of a fellow-passenger was drawn to it by its cry. As he comes from Ayrshire, and knows the bird well, the identification is probably correct, although, to the writer, in the fleeting glimpses obtained, the bird seemed more the size of the Whimbrel. It was hoped that it would finally rest on the ship, but it soon disappeared.

The Sooty Tern (*Sterna fuscata*) was met with at Ascension and the Noddy (*Anous stolidus*) at both Ascension and St. Helena, but not on the voyage between the islands.

Herring-Gulls (*Larus argentatus*) were seen in the English Channel on January 10th, and the Bay of Biscay near Ushant on February 23rd. In Funchal Bay, Madeira, Herring-Gulls were numerous, but the actual subspecies was not determined.

Lesser Black-backed Gulls (*Larus fuscus*) were common at Santa Cruz, Tenerife, on January 17th, where they were the only Gull seen. They were also seen in considerable numbers in Funchal Bay on February 20th, and near Cape Finisterre on February 2nd. It is not known to which subspecies these birds belonged.

Great Black-backed Gulls (*Larus marinus*) were noted in the English Channel on January 10th, off Cape Verde on January 20th and February 17th, and in the Bay of Biscay on February 23rd.

Kittiwake Gulls (*Rissa tridactyla*) followed the ship in the English Channel on January 10th, and were still following four days later (when weather conditions allowed the writer to resume observations!). Except when at Tenerife, Kittiwakes continued to follow us until 19° N. latitude (January 19th). On the homeward voyage they were not met with until 26° N., the date being February 19th.

Great Skuas (*Stercorarius skua*) were seen among Pomatorhine Skuas about 300 miles south of Cape Verde, 9° N. latitude, 17° 7′ W. on January 21st. Only a few were noted.

Pomatorhine Skuas (*Stercorarius pomarinus*) were the commonest bird seen for a few days, being found in small numbers 200 miles south of Tenerife (25° N.) on January 18th. Next day the numbers increased and they followed the ship until January 21st when we were in 8° or 9° N. latitude. It was difficult to estimate the numbers met with as they were following and circling round the ship. As, however, there

were from a dozen to twenty round the ship at a time, they appeared to be fairly numerous. On the northward voyage the species was first seen about 10° N., 16° 15′ W. on February 16th, but was only noted for a few hours and a single individual only at a time—possibly the same bird. It was not seen later in the voyage.

Guillemots (*Uria aalge* ?subsp.) were seen off Ushant on February 23rd, but not elsewhere.

The writer recognizes that such notes as these are of little or no scientific value by themselves. If, however, other travellers will publish their observations, interesting knowledge could be accumulated.

THE MIGRATIONS OF THE BAR-TAILED GODWIT AS OBSERVED ON THE SOUTH LANCASHIRE COAST.

BY

F. W. HOLDER and R. WAGSTAFFE.

MITCHELL'S *Birds of Lancashire* (1892) gives a very unsatisfactory account of the status of the Bar-tailed Godwit (*Limosa l. lapponica*); indeed, the authors were not well informed with regard to shore-birds. The statement that the Bar-tailed Godwit "is a Spring and Autumn migrant, seldom appearing at the latter season until September, or remaining longer than the end of the following month," cannot be accepted as accurate, even at the time at which they wrote. In the *Birds of Formby*, published in the same year, Mr. John Wrigley writes "This bird is common on the coast throughout the Winter." The authors of *The Birds of the Ribble Estuary*, however record this Godwit as occurring in small numbers, chiefly during the autumn, arriving in September and generally departing before November. Possibly the fact that the Bar-tailed Godwit, in winter, seems to have a preference for the open coast, rather than the estuaries, has led to the opinions expressed above. As shown in the second schedule, the date of arrival as quoted by Mitchell and others is erroneous.

SCHEDULE I.

WINTER AND SPRING MOVEMENTS.

Year.	Large Winter Passage.	Departure of Winter Residents.	Spring Passage.	Birds in Nuptial Dress.
1917	—	—	April 22	April 8. 1 out of 200
1918	—	—	May 12	March 29. 1 out of 200
1919	March 10	March 16	—	—
1920	—	April 4	—	—
1921	—	March 25	June 3—June 11	June 3. 1 out of 150
1922	March 12	April 6	—	—
1923	—	March 30	April 29—May 13	—
1924	March 9	April 20	May 4—May 18	May 18. 1 out of 30
1925	—	March 14	—	March 14. 2 out of 70
1926	—	March 16	—	—
1927	February 20	April 3	May 22	—
1928	February 26	April 8	April 22	March 20. 3 out of 300
1929	March 17	—	—	March 25. 2 out of 200
	March 6	March 30—Average Dates.		

Winter Movements.

In normal years the winter flock of Godwits on the south Lancashire coast numbers from 200 to 300 birds. In some years immigration does not cease with the arrival of these winter visitors in September and October. During the severe frost of the early part of 1917, birds arrived in large numbers on January 28th and remained throughout the spell of hard weather. Towards the end of November, 1928, continuous westerly gales brought a host of Godwits to the mouth of the Ribble Estuary, but these left early in December. The largest flocks we have seen on the west coast have occurred in February and March. These months are not recorded by the authorities as those in which passage movements should be looked for, but in six out of the last twelve years we have noticed this striking, if transient, increase. Severe weather may, and does, influence a movement—probably westerly—but in our opinion the lateness of the dates is not compatible with the theory in all instances.

It may be possible that the migration is a local one, confined to the British coasts, and may have been overlooked on this account; but where waders are concerned it must be remembered that the human is a factor, as few ornithologists watch their coasts with any degree of regularity. The starting place of these Godwits must remain uncertain, but it is a fact that on arrival the birds are still in winter dress,* and they do not linger. The resident winter birds usually depart some weeks later, but even in this matter there is a suggestion in the occasional March departures of an early move towards nesting grounds. The journey towards them is probably of the same loitering character definitely noticeable in some waders. It is not so readily detected in the more essentially marine species, with the possible exception of the Grey Plover, but it is quite apparent in the Golden Plover and Whimbrel on the grain fields in spring. The Bar-tail is somewhat irregular in the date of its departure, but the winter flock is rarely observed after the first week in April.

Assumption of Nuptial Dress.

The first signs of the impending change of plumage are usually observed during the latter half of March, but the percentage of those affected is small, and our earliest date for the moult becoming apparent in the living bird is March 14th. Even when the winter flocks have been under observation in early April, we have not observed more than three

* See also our note on the Sanderling. *B. B*, Vol. XXIII., p. 54.

red birds on any one day; indeed, there have been seasons when, so far as we knew, they were totally absent. We reject the "possible" theory that the great bulk of our winter Godwits are immature birds. The nuptial dress must be gradually assumed while the birds move slowly to their breeding grounds.

Spring Passage.

Coward* remarks on the irregular visits of the Godwits, and adds that the migratory Bar-tails seem to miss our shores or to pass without stopping to rest. On the south Lancashire coast this would appear to be true so far as the spring passage is concerned. In most years there is usually a well-marked *hiatus* between the departure of the winter residents and the arrival of the migrants, but this Godwit as a passage bird in spring is an uncertain quantity, so that, as often as not, it has not been observed. The adult Bar-tail in nuptial plumage is a decidedly uncommon bird in spring on this coast. We have, however, one exceptional occurrence on April 22nd, 1929 (wind N.W.), when many in partial dress were seen among a flock of 500 Godwits (mostly grey birds) at Banks.

As is well known, grey-plumaged Godwits remain through the summer on certain coasts, and, on the Lancashire shore, birds in this phase of plumage form the majority of the passage migrants in spring. In our opinion, Godwits staying the summer through are not birds which have wintered here, but are really summer visitors. Much the same phenomenon is clearly observable in the immature Lesser Black-backed Gull. The spring passages given in the first schedule, for the years 1917-23, relate entirely to these grey birds, the flocks in each instance being over 200 strong. In June, 1921, Holder daily patrolled the shore while in residence at Ainsdale, and on the 3rd of that month noticed about 150 Godwits resting in the tidal shallows, only one bird being in nuptial dress. The flock was seen until the 11th, when it passed on. May not these Godwits comprise birds which spend the summer on the west coast of Scotland?

The Summering Godwit.

The period 1918-1925 may be referred to as the "Golden Age" of summering waders on the south Lancashire coast, not only for the Bar-tailed Godwit but for the Oyster-catcher, Sanderling, Grey Plover and Knot. Commencing in 1918, the grey Godwit flocks comprised 50 birds, and while spending

* *Birds of the British Isles.* Series I.

much time on the dune shore and at the estuary mouth, they formed a new habit of visiting the dune slacks. This habit is still kept up on their return in August. In 1922, the summer flock had an aggregate of 80, and in 1925 it totalled 60. We may add that these Godwits were regularly observed, and there could be no error as to their *status*. A fairly extensive acquaintance with summering Godwits has failed to reveal an adult among them, and we have not seen a "red" Godwit later than June 3rd. The late Mrs. Meinertzhagen stated* that "the assumption of the nuptial dress (in certain species of waders) does not in all cases indicate the breeding potentiality of an adult bird." In the *Practical Handbook* she wrote of a pink cinnamon phase in the first summer plumage of this bird, although the note is not incorporated in her careful description of the moult in *British Birds*, Vol. XII., p. 151. In many years' contact with the Bar-tail, we have failed to meet with a first summer bird in plumage other than grey, although hundreds have been under observation. We agree with her suggestion that the Godwits remaining on the British coast throughout the summer are young non-breeding birds, and the possibility of the adult in the grey dress occurring as a summerer is not supported by the anatomical examination of ten grey summer birds from the Ribble Estuary. All were first summer birds, six being males. In each bird, according to sex, the testes or the ova were so small, and the oviduct, etc., so ill-developed, that it is certain that these birds could not breed in the same season. Microscopical examination only served to confirm this view.

SCHEDULE II.

SUMMER AND AUTUMN MOVEMENTS.

Year.	First "Red" Birds seen.		Arrival in Numbers.	Autumnal Immigration.
1917	July 8.	2 out of 5	August 4	—
1918	July 14.	1 out of 40	August 4	—
1919	July 20.	30 out of 60	July 24†	September 13
1920	July 17		August 10	October 3
1921		—	August 7	September 18
1922	July 23		—	September 21
1923	July 25.	1 out of 20	August 12	September 25
1924	July 13.	1 out of 10	July 14†	October 12
1925	July 12.	1 out of 100	July 5†	September 6
1926	July 25.	1 out of 45	August 1	—
1927	July 17.	1 out of 100	July 17†	October 9
1928		—	August 1	September 10
Average Dates ...	July 17		August 2	September 23

* *B. B.*, Vol. XI., p. 63.
† First Summer Birds.

Early Summer Arrivals.

The "Red" Godwit, seen regularly in July from the second week onwards, is an immigrant, and usually only odd birds in this dress are to be seen among the first arrivals. We have no anatomical findings, and we are, therefore, not yet in a position to determine whether these July adults have bred; but examination of a Godwit shot on August 18th, 1928, showed that the bird had probably bred during the same summer. It is possible, therefore, that the "Red" Godwits seen in July have made an early return from the breeding ground owing to various causes—they may be unmated birds, or those which have lost their young—not an uncommon event, especially in the case of the ground-nesting species. The earliest date on which we have observed these adults is July 8th, 1917, when two were seen, and by the 23rd of the same month there were 19 present in a party of 26. This small annual immigration of adults in July is not, however, the only Godwit movement during the month. In the years 1919, 1924, 1925 and 1927, first summer birds returned in considerable numbers before August 1st, appreciably augmenting the number of grey birds which had remained with us. The movement was most striking in 1924 and 1925. On July 14th, 1924, there were fully 200 first summer birds at Banks, and also a few adults. Again, in 1925, these grey birds were common from July 5th, a week before the first adults were noticed on the coast. Possibly these incoming Godwits were individuals which had summered further north, or even east.

August and Autumnal Arrivals.

The early days of August mark the advent of young birds on the south Lancashire coast, but they are by no means so numerous as at the latter end of the month and in September. Immigration in the first fortnight of August is often of a complicated character, and the composition of the flocks may vary from day to day. The observations given below are typical of the Godwit movements in the early portion of the month in most years.

1928.

August	1st.	Mostly immature birds, a few adults.
,,	2nd.	Do. do. do.
,,	4th.	Many immature birds, a few adults.
,,	5th.	Mostly immature birds.
,,	6th.	Ditto.
,,	7th.	Many adults and immature birds.
,,	8th.	Majority immature birds, some adults.
,,	9th.	Do. do. do.
,,	14th.	Young birds of the year, a few grey birds.
,,	17th.	A young bird of the year examined in the flesh.
,,	18th.	Adults and young birds of the year common.

We have not found the Bar-tail to be so common in August as in September and October, when the immature birds are usually so plentiful, but a flock of 200 birds in the early part of August is not exceptional.

In closing this paper, we should like to state that it has been written in the hope of shedding some light on what is admittedly a difficult phase of ornithology. The paper embodies the findings derived from continuous observation in all weathers over many years. We do not, however, desire our views to be considered in any way dogmatical.

SUPPLEMENTARY REPORT ON THE "BRITISH BIRDS" CENSUS OF HERONRIES.

BY

E. M. NICHOLSON.

PART I.

INTRODUCTORY.—Since the publication of the original *Report* on the census of 1928 (*antea*, Vol. XXII., pp. 270–323 and 334–372), a good deal of additional information has come to hand. Much of it refers to subsequent developments at recorded sites and the addition of nearly a dozen newly founded during 1929, but there are also important amendments, including the discovery of several heronries extant by 1928 which had escaped inclusion in the census. While it is not to be supposed that revision is even now perfect, or that no more unknown colonies may exist in certain counties, it seems desirable to publish the new material so far available. In doing so, we must take this opportunity of expressing gratitude to those who have contributed, by drawing our attention to omissions and mistakes, towards a more thorough and accurate knowledge of the subject. At the same time, the insignificant number of errors detected is a tribute to the accuracy of the original observers.

In presentation we have naturally to follow the lines already laid down. This paper must therefore be regarded as *Addenda* and *Corrigenda* to the actual *Report*. In order to preserve the original county numerals for sites, additional existing colonies are allotted "A" or "B" numbers in their appropriate place, while further extinct heronries recorded receive fresh numbers at the end of the former series. In place of "Occupied Nests: Previous Years" the third column now reads "Other Years" to include 1929–30, the census year 1928 remaining distinct.

Similarly, in order to avoid the confusion which would result from grouping sites subsequent to 1928 with those already extinct in that year, the title of the second list has been altered to read "Heronries extinct by 1928," since the possibility of a temporary lapse has no longer to be considered.

The exclusion of solitary nests not occupied since 1900 and already recorded in literature has been maintained, with one or two exceptions where the place of record has been so obscure as to be likely to escape attention. The comparatively few additional details of diet received must stand over for later treatment, nor is it necessary at this stage to review the handful of extra ringing recoveries since published in BRITISH BIRDS. The publication in full by Mr. B. W. Tucker of material relating to Somerset up to

ie present date makes it possible simply to refer to his forthcoming ıper for the wealth of extra data belonging to that county.

It is impossible to conclude without reference to the incalculable ss suffered through the recent death of Professor Kennedy Orton, ho had added to his already large contribution by clearing up the ery difficult area of Merioneth and Montgomery last season, at ie same time repeating his previous survey. He will long be emembered.

EXISTING HERONRIES.

ENGLAND—REVISED.

	Occupied Nests. 1928.	Occupied Nests. Other Years.	Founded.	Authority.
edfordshire. (p. 278).				
a. CLAPHAM WOODS (2nd Colony)	—	± 8 in 1929.	1929.	H. Hawkins, per J. Steele Elliott.
a. BROMHAM PARK, BIDDENHAM	2	1 in 1927. 3 attempted 1929.	1927.	R. Skinner, per J. Steele Elliott.
b. HOWBURY PARK RENHOLD	1	None in 1929.	1928.	J. Steele Elliott.
erkshire. (p. 278).				
. WYTHAM, NR. OXFORD	—	21—in 1929 (May 28)	—	Oxford Orn. Soc.—*A. P. Meiklejohn, C. E. Wigg.*
. BUSCOT, NR. FARINGDON.	—	22 in 1929 (May 12).	—	Oxford Orn. Soc.—*C. J. D'Aeth.*
heshire. (p. 279).				
3. COMBERMERE ABBEY	—	40 in 1929.	—	*Sir K. Crossley, Bt.*, per A. W. Boyd.
Cornwall. (p. 279).				
9a. CLIFF, NR. MAWGAN PORTH	—	1 in 1929.	1929 (?).	B. H. Ryves.
Cumberland. (p. 279).				
1. CROFTON HALL PARK	—	10 in 1929 (May 1)	—	R. H. Brown.
2. FLORISTON	—	6 in 1929 (May–June).	—	,, ,,
5. ULDALE	—	2 in 1924: 6 in 1929 (May–June).	1924 or earlier.	,, ,,
18a. DALSTON	—	1 in 1929 (May 5).	—	,, ,,
Devonshire. (p. 281).				
16a. COPSE ON DARTMOOR	—	1 in 1929.	1929.	Owen Wynne.
17a. NR. CREDITON	—	1 in 1929.	—	,, ,,

ENGLAND—*continued.*

	Occupied Nests. 1928.	Occupied Nests. Other Years.	Founded.	Authority.
Durham. (p. 282).				
1. GAINFORD *Delete former entry and read :*	(*a*) 5 (May 22) (*b*) 6 (May 28)	'Small' in 1851 : 19 before 1912 : 2 in 1920 : 1 in 1921–22. *New site* (a ?) 1 in 1922 : 3 in 1923 : 5 in 1924 : 7 in 1925 : 7–8 in 1926: 3–4 in 1927 : ± 6 in 1929.	Immemorial : shifted and divided *c.* 1914–22.	M. E. A. Davies Bentley Beetham (*Naturalist*, 1852) (Bonnett).
Essex. (p. 282).				
2. WANSTEAD PARK	—	± 30 in 1866 : 68 in 1894 : 55 in 1895 : 74 in 1915 : 72 in 1916 : 52 in 1917 : 46 in 1925.	—	(Glegg.)
4. BOREHAM HOUSE	—	52 in 1922 (May).	—	,,
5a. SKIPPER'S ISLAND, KIRBY-LE-SOKEN	± 7–8	Usually 7–8 recently : 1 in 1930 (April 19).	Immemorial : lapsed *c.* 1915–21.	*J. Cock* : T. G. Powell H. F. Witherby an E. M. Nicholson, W E. Glegg.
Hampshire. (p. 282).				
3. WOOTTON, I. O. W. *Delete former entry and read :*	± 15 (April)	± 12 in 1927 : 10 in 1929 (May).	*c.* 1923–4 : none for at least 60 years previously.	J. F. and M. Wynne S. R. Clarke : *G. G Hartill.*
4. SOWLEY POND	—	20–25 in 1929.		M. C. W. Dilke.
8a. NR. FAWLEY	1	'Always' 1 (1 in 1929).	?	,,
8b. NR. WARSASH	—	1 in 1926–7 : 1 in 1929 (April).	No evidence for other years.	C. R. and B. Stonor M. C. W. Dilke.
25b. CRANBURY PARK, OTTERBOURNE *Delete former entry and read :*	1	1 in 1927 : 1 (?) in 1929.	'Probably a good many years.'	T. H. Harrisson : *Mis E. M. Williams*, pe E. M. Nicholson.
Hertfordshire.				
1a. HUNSDON	4 (May)	4 since *c* 1924 : 5 previously.	Before 1900	J. D Eath.
Kent. (p. 283).				
6a. SANDLING PARK, HYTHE	1	2 in 1929 : 2 in 1930 (March).	1928, after earlier failures.	L. Hardy, per E. G. B Meade-Waldo.
Lancashire. (p. 283).				
8a. HAVERTHWAITE, RUSLAND POOL	1-2 (?)	2 in 1929.	1927-8. Perhaps offshoot of No. 2.	H. S. Greg.

ENGLAND—*continued.*

	Occupied Nests. 1928.	Occupied Nests. Other Years.	Founded.	Authority.
Lincolnshire. (p. 284).				
Delete former entries Nos. 8 and 17 and read :				
8. ASWARBY THORNS	1 (May)	1 half-built, 1927 : 1 in 1929.	1927, probably from Evedon Wood	Sir G. Whichcote, Bt., per J. S. Reeve.
17. STAINFIELD BIG WOOD WRAGBY	± 3–7 (?)	(*a*) 7 in 1929. (*b*) 2 in 1929.	Immemorial : has shifted from Southery.	Miss F. K. Staunton : H. B. Cartman, per H. F. Allison : (Bonnett).
Monmouth. (p. 284).				
1. PWLLHEAD WOOD. *Delete former entry and read :*	16	9 between *c.* 1900–1911 : 15–16 in 1916 : 12 in 1929 : 25 in 1930 (Feb. 25).	Probably before 1900.	G. C. S. Ingram : R. C. Banks : H. M. Salmon : —— Tallis : A. Silver : H. J. Lovelock.
Norfolk. (p. 285).				
12a. HORSTEAD NR. WROXHAM	± 3–5 (?)	± 4–5 in 1918, which is the usual figure.	Before 1918.	*A. J. Duncombe-Anderson*, per E. M. Nicholson : B. B. Riviere.
19a. TASBURGH	None	1 in 1929 (May).	1929.	P. Hogg : B. B. Riviere.
Northumberland. (p. 286).				
11a. EWART PARK, NR. WOOLER	14	[illegible] gradually to ± 30: declined after 1914 : 17 in 1929.	*c.* 1894.	G. W. Temperley.
Oxfordshire. (p. 286).				
1. OTMOOR	—	5 in 1929.	—	Oxford Orn. Soc.—*A. P. Meiklejohn : C. J. D'Aeth.*
Shropshire. (p. [illegible]).				
5. OAKLEY PARK, BROMFIELD, LUDLOW *Delete former entry and read :*	[illegible]	Usually 15 before 1879 : 10–16 *c.* 1911 or earlier : ± 7 in 1908 (April 21) & 1921 (March 4) : 4 in 1929.	Immemorial.	C. H. Woodhouse : H. Allein : E. Phillips : H. E. Forrest : (V.C.H.) : (Yarrell, 4th Ed.) : (Bonnett).
Somerset. (p. 287).				
1. SOMERTON WOOD	—	75–77 in 1929 (May 25).	—	[illegible]
2. HALSWELL PARK	—	35 in 1929.	—	..
3. BANWELL WOOD	—	22–23 in 1929.	—	..
5. SWELL WOOD, NR. FIVEHEAD	—	± 26 in 1929.	—	..
6. ALLERS WOOD, DULVERTON	—	9–11 in 1929.	—	..

ENGLAND—*continued.*

	Occupied Nests. 1928.	Occupied Nests. Previous Years.	Founded.	Authority.
Somerset—*continued.*				
8. MARSTON PARK	—	6 in 1929.	—	(Tucker.)
8a. ETSOME WOOD, SOMERTON	None	3 in 1929 (May 25).	1929.	,,
9. EDINGTON *Amend 3rd column*	—	1 in 1927.	—	—
10. 'NR. WILLITON'	—	1 in 1929.	—	(Tucker.)
11. EXFORD	—	1 in 1929.	—	,,
Suffolk. (p. 288).				
1. NR. NACTON, ETC.	—	(*All Bridge Wood only*): 12–15 in 1926: 9–11 in 1929: some in 1886.	—	C. B. Ticehurst: T. G Powell.
5a. CULFORD PARK	14	Always ± 14–16. 14 in 1929: 15 in 1930 (March).	Before *c.* 1898.	Mrs. H. Rait Kerr. *R. Edwards:* C. B Ticehurst.
8a. BUTLEY FERRY	3–4	?	?	C. B. Ticehurst.
9a. LAKENHEATH	1	1 in 1929.	App. shifted from near Brandon, *c.* 1925–8.	G. B. Westcott.
9b. BULMER, NR. SUDBURY	—	1 'some years since': 1 attempted, 1929.	No other dates.	*L. Hyde Parker,* pe C. H. Row and W. E Glegg.
Surrey. (p. 288).				
1. RICHMOND PARK	—	16 in 1893.	From Hampton Court (Middlesex).	(Cornish.)
2. BURWOOD PARK	—	31 in 1929 (May 1).	—	T. H. Harrisson.
3. WINDSOR PARK (VIRGINIA WATER)	—	12–14 in 1929 (April).	—	,, ,,
4. WAVERLEY	—	None found, 1929.	—	,, ,,
5a. BURY HILL, DORKING	1	1 in 1927: none in 1929.	1927 (?).	,, ,,
Warwickshire. (p. 289).				
5a. OFFCHURCH	—	1 in 1929.	1929.	L. F. J. Phelps.
Westmorland. (p. 289).				
1a. BLEA TARN (BIRDBY), NR. KIRKBY STEPHEN	Prob. ± 16.	(Said to have decreased): ± 19 in 1929 (June).	Immemorial.	E. M. and B. D Nicholson.

ENGLAND—*continued.*

	Occupied Nests. 1928.	Other Years.	Founded.	Authority.
Wiltshire. (p. 290).				
10b. SHEARWATER LAKE *Delete former entry and read :*	None	1 in 1926 : 1 in 1929.	1926 : apparently none in interval.	C R: Stonor ; *A. Trollope*, per S. Lewis.
Worcestershire. (p. 290).				
1a. CROOME PARK	(*a*) ± 25.	(*a*) 1 *c.* 1878–9 : 5–6 *c.* 1880 : 25–27 recently in some years. (*b*) 1 *c.* 1905 : 4 *c.* 1906 : none since.	*c.* 1878.	H G. Alexander : H. A. Gilbert : *H. L. Wilson.*

WALES.

Anglesey. (p. 291).				
1. TRE-IORWERTH	—	(*a*) 1 in 1929 (April). (*b*) None in 1929 (April).	—	Kennedy Orton.
2. CADNANT ISLAND	—	3–4 in 1929 (April).	—	,, ,,
Breconshire. (p. 291).				
2. CWRT-Y-GOLLEN *Amend 2nd column*	± 12	—	—	(*Add*) : R. P. Sandeman.
Caernarvonshire.* (p. 291).				
3. ABERDUNANT	—	5–6 in 1929 (May 16).	—	Kennedy Orton.
4. NANHORON PARK	—	1 in 1929, (May 16).	—	,, ,,
5. BROOMHALL	—	(*a*) 2 in 1929 (May 16). (*b*) None in 1929 (May 16).	—	,, ,,
6. YSTUMLLYN	—	None in 1929 (May 16).	—	,, ,,
7. GLYNLLIFON PARK	—	2 in 1929 (May 2).	—	,, ,,
Denbighshire. (p. 292).				
3. VOELAS	—	(*a*) 3 in 1929. (*b*) None in 1929.	—	Kennedy Orton.
Merioneth. (p. 292). *Delete former entries Nos. 2 and 3 and read :*				
2. PENIARTH, NR. TOWYN	± 6–8 (?)	6–8 usually now : 7 *c.* 1906.	Immemorial.	Kennedy Orton : (Forrest) : (Harting, 1872).
3. PENMAENDYFI, PENNAL	± 8–9	8–9 in 1929.	*c.* 1919 from Talgarth.	Kennedy Orton : *E.W. Ormond.*
Montgomery. (p. 293).				
1a. DOLCORSLWYN HALL, CEMMAES	5	1 in 1925 : 3 in 1926 : 4 in 1927 : 4 in 1929.	1925	Kennedy Orton : *Miss Norton.*

* No new sites were found in Anglesey or Caernarvon, and those already deserted (*antea*, Vol. XXII., pp. 311–12) remained so in 1929.—K.O.

[On p. 294.—Hertfordshire must now be removed from the list of counties with no occupied nests.]

HERONRIES EXTINCT BY 1928.

ENGLAND.

	Approximate No. of Nests.	Year of Desertion.	Founded.	Authority.
Bedfordshire. (p. 295).				
9. CAMHOE PARK WOOD, CLOPHILL	1 only.	*c.* 1892.	*c.* 1892.	J. S. Elliott.
10. BROWN'S WOOD, OAKLEY	1 only.	1878.	1878.	,, ,,
11. CARDINGTON	1 only.	1915.	1915.	,, ,,
Cambridgeshire. (p. 295).				
1. CHIPPENHAM PARK *Amend 4th column.*	—	—	(*a*) Before 1845.	C. B. Ticehurst.
Cheshire. (p. 296). *Delete former entries Nos. 10 and 17 and read:*				
10. TAXAL=HOO MOOR, GOYT VALLEY	1–2.	Vacant, 1928.	—	*J. Armitage:* A. W. Boyd: (Coward).
15. *Delete former entry and read:* ARLEY POOL (='ARDLEY HALL' of Yarrell)	—	*c.* 1850. ?to Tabley.	*c.* 1834–5, from Tatton.	A. W. Boyd: (Coward & Oldham): (Yarrell, 1st Ed.).
Essex. (p. 299).				
8. =BELHUS, AVELEY *Amend 3rd column.*	—	Before 1710.	—	(Glegg.)
12. TOLLESBURY REED-BED	'Formerly numerous.'	Immemorial.	?	(Harting, 1911.)
13. EASTON	1 (?)	1917 (?)	1916.	(Felsted S.S.S. Report.)
14. ABSOL PARK	1 attempted.	1917 (?).	1917 (?).	,, ,, ,,
15. TYLE GROVE, LATCHINGDON	5 in 1893: 13 in 1897.	1898.	?	(Glegg.)
Hampshire. (p. 300.)				
19. MOTTISFONT	20–25 *c.* 1902.	—	Immemorial.	(Kelsall and Munn.)
Herefordshire. (p. 301.)				
17. TITLEY COURT	3 + in 1920.	1920.	Prob. not long before 1920.	S. Pershouse: *Miss M. M. Gresley.*
18. STAUNTON-ON-ARROW	(2 small groups).	1917.	1917 (?).	Preb. *Cornish-Watkins,* per S. Pershouse.

ENGLAND—*continued.*

	Approximate No. of Nests.	Year of Desertion.	Founded.	Authority.
Lincolnshire. (p. 302).				
5. LEADENHAM-FULBECK	*Delete* '14 before 1900 (?).'	—	—	J. S. Reeve.
Middlesex. (p. 302).				
2. HAMPTON COURT	(Evidently a fair number.)	*c.* 1880 to Richmond Park, etc.	Ancient: (by 17th century).	(Cornish.)
3. SYON PARK	1	1894.	1893.	(Trans. Ealing N.S. & M.S.)
[4*. STANWELL PLACE.	—	*c.* 1879.	—	E. Syers.]
Norfolk (p. 304).				
44. GARBOLDISHAM HEATH	10–12.	*c.* 1889.	?	P. W. Horn.
45. THICKET WOOD, NR. HARLESTON	7 in 1884: 3 in 1885–6; 4 in 1887.	?	1884.	C. B. Ticehurst.
46. GAWDY HALL WOOD, NR. HARLESTON	1 *c.* 1808: 1 *c.* 1884–7.	(Odd nests only occasionally.)	?	,, ,,
47. THORPE ABBOTS, NR. HARLESTON	3–7.	1887 (?).	1881 (?).	,, ,,
48. FELTWELL FEN	A few.	Before 1916.	—	,, ,,
Shropshire (p. 305).				
Delete 5. OAKLEY PARK *and see* SHROPSHIRE—EXISTING (REVISED)				
Suffolk. (p. 307).				
17. SCOTS HALL, MINSMERE	A few formerly.	—	—	C. B. Ticehurst.
27. CAVENHAM *Delete former entry and read:*	—	After *c.* 1899–1902 prob. to Culford	Before 1884.	,, ,,
29. NR. BRANDON	4–5 *c.* 1924–5.	*c.* 1925–7.	?	G. B. Westcott.
30. COCKFIELD	Some *c.* 1835.	—	—	C. B. Ticehurst.
15. 100-ACRE WOOD and 16. TANGHAM FOREST	For '*c.* 1912–14' in 3rd and 4th columns, *read* '1912–16' and			*Add* T. G. Powell.
Surrey (p. 307).				
6. COBHAM PARK *Amend 3rd column.*	—	*c.* 1875.	—	(Harting, 1911.)

* We place this record in square brackets, since it has not proved verifiable: the supposed date would coincide roughly with the dispersal of No. 2, which may well have had a temporary offshoot here.

ENGLAND—*continued.*

	Occupied Nests. 1928.	Occupied Nests. Other Years.	Founded.	Authority.
Surrey—*continued.*				
9. ASHLEY PARK *Amend 3rd column.*	—	*c.* 1855.	—	(Harting, 1911.)
Westmorland (p. 308).				
4. MIDDLETON WOODS, NR. SEDBERGH	—	—	Probably since 1890.	A. Astley.
7. *Delete former entry and read:* NR. LORD'S DUB, SEDBERGH	± 8: (4–6 *c.* 1886–9).	*c.* 1901.	Before 1887: from Ingmire, Yorks.	A. Astley: A. A. Duncan.
ISLE OF MAN. (p. 313).				
1. INJEBRECK	1 in 1912.	—	—	(*Antea*, Vol. VII. p. 314.)
2. KIRK PATRICK	1 some years ago.	—	—	P. G. Ralfe.
3. THE CROFTS, CASTLETOWN	(Unknown.)	Flourished *c.* 1820.	—	,, ,,
4. BALLAMOAR, NR. KIRK PATRICK	1 *c.* 1860.	?	?	,, ,,
5. DOUGLAS HEAD	Prob. 1.	*c.* 1880.	—	,, ,,
6. COAN SHELLAGH (or KIONE SHELLAGH)	'A few.'	*c.* 1880.	—	,, ,,
7. BETWEEN LAXEY AND DHOON	(Unknown).	*c.* 1880.	—	,, ,,
8. BALLAUGH CURRAGH	?	1895.	—	,, ,,

SUMMARY OF COUNTIES—REVISED ITEMS.

ENGLAND (p. 315).

County.	Number in 1928 of Occupied Sites.	Number in 1928 of Breeding Pairs.	Average size of Colony.
Bedfordshire	4	23	6
Essex	7	224—	32
Hampshire	10	±89	9
Hertfordshire	1	4	4
Kent	7	±143–147	21
Lancashire	9	±131–137	15
Lincolnshire	9	±153–157	17
Monmouth	3	27–28	9
Norfolk	20	335–356	17–18
Northumberland	9	±62–68	7–8
Shropshire	4	±43	11
Suffolk	12	189–197	16
Surrey	6	±68–69	11
Westmorland	3	±49	16
Worcestershire	2	±48	24

WALES.

Breconshire	6	±46–49	8
Merioneth	3	±18–22	6–7
Montgomery	3	22–23	7

Revised Totals.

	Minima.	Maxima.
England	3,585	3,677
Wales	287	303
	3,872	3,980

SUPPLEMENTARY INDEX TO INFORMATION

(Note.—In the following table the arrangement and symbols are the same as in the original Report (p. 318), except that post-1928 heronries appear within square brackets. The other colonies included are those extant in 1928 but omitted from the census and those for which some correction has been necessary. In the latter case the full information is given as it ought to read, and the former entry should be taken as deleted.)

HERONRIES IN ORDER OF SIZE.

England (p. 318).

±25 Croome Park, Worcs. (*c*). *ff*. *t*.
16 Pwllhead Wood, Monmouth. Prob. (*c*). *f*., etc.
±16 Blea Tarn, Westmorland. (*b*). *m*. and *n*.
±15 Wootton, I.O.W. (*e*). *f*.
14 Ewart Park, Northumberland. (*c*). *m*.
14 Culford Park, Suffolk. (*c*).
11 Gainford, Durham. (*b*). Mostly (*f*). then (*n*). *l*. (*s*).
[± 8 Clapham Woods, Beds. *m*.]
±7–8 Skipper's Island, Essex. (*b*). *ff*. (?).
±3–7 (?) Stainfield Big Wood, Lincs. (*b*). *f*.
4 Hunsdon, Herts. (*c*). *p*. and *o*. *r*.
± 4 Oakley Park, Salop. (*b*). (*s*).
3–4 Butley Ferry, Suffolk.
[3 Etsome Wood, Somerset.]
2 Bromham Park, Beds. (*e*). *m*.
1–2 Haverthwaite, Lancs. *n*.
1 Howbury Park, Beds. (*e*). *o*.
[1 Cliff nr. Mawgan Porth, Cornwall. *q*.]
[1 Dalston, Cumberland. *m*.]
[1 Dartmoor, Devon. *m*.]
[1 Nr. Crediton, Devon.]
1 Cranbury Park, Hants. (*d*). or (*e*).
1 Nr. Fawley, Hants. (*d*). or (*e*). *m*.
[1 Nr. Warsash, Hants. *m*.]
1 Sandling Park, Kent. (*e*). *r*.
1 Aswarby Thorns, Lincs. (*e*).
1 Borley, Suffolk. (*e*). *f*.
[1 Bulmer, Suffolk.]
1 Lakenheath, Suffolk. (*e*). *gg*. *t*.
1 Bury Hill, Surrey. (*e*).
[1 Offchurch, Warwicks.]
[1 Shearwater, Wilts. *p*.]

Wales (p. 322).

±12 Cwrt-y-gollen, Brecon. (*b*). *m*. and *n*. *r*.
±8–9 Penmaendyfi, Merioneth. (*e*). *m*.
±6–8 Peniarth, Merioneth. (*b*). *m*.
5 Dolcorslwyn, Montgomery. (*e*). *m*.

PART II.

(NOTE.—A certain amount of additional material has come to hand upon the subjects dealt with in Part II. of the *Report*. This summary is confined, however, to actual corrections of previous statements and to amplifications of evidence; where the same or similar data have already appeared in the *Report* they are not here quoted.)

RELATIONS WITH OTHER SPECIES (p. 341).

A case of a Heron attacked and killed by a pair of Peregrine Falcons (*Falco peregrinus*) above a Somerset peat marsh was communicated by the late F. H. Symonds to Mr. R. H. Brown, who has himself seen a pair pestering a Heron. At L. Shin (Sutherland) in 1875 Mr. H. M. Wallis found a pair of Ravens (*Corvus corax*), which had usurped one of the nests of the heronry, "incessantly chasing and bawling at the Herons." He also discovered in a disused eyry of the Golden Eagle (*Aquila chrysaetus*) "the clean leg bone of what must have, from its length, been a Heron." Mr. C. Pettiward, in Suffolk during 1928, watched a Kestrel (*Falco tinnunculus*) drive a Heron away out of sight, and then come back and drive another away. A pair of Herons which nested in Howbury Park (Beds.) during 1928 were said to have had their eggs taken by Jackdaws (*Coloeus monedula*). Mr. T. H. Harrisson has seen a Carrion-Crow (*Corvus corone*) attack and peck at a squatting Heron (April 29th, 1929). He has also seen them mobbed by Swallows (*Hirundo rustica*) and House-Martins (*Delichon urbica*). At Cley (Norfolk) Great Black-backed Gulls (*Larus marinus*) are recorded to pursue Herons which have captured eels, and on August 24th, 1929, one was seen to attack and put up a Heron, forcing it not merely to drop the eel which it had just secured, but to disgorge a second one about a minute later. After this, the Gull quietly returned and collected both eels.

POPULATION (p. 350).

FERTILITY.

A small heronry on S. Uist visited by Mr. W. A. S. Lewis on June 30th, 1929, had nests with eggs c 5 one, c 4 four and c 3 one. In addition, two nests contained respectively 2 and 3 newly-hatched young and there were 8 "fully-grown young birds." Mr. R. H. Brown's Cumberland data now cover five years (1925–29) at Floriston and Uldale and also one year at Crofton. The 70 nests thus included give 2.8 young as an average brood. At Croome Park (Worcestershire) Mr. H. G. Alexander is informed that two broods are regularly reared, each averaging 4–5 birds, but exact statistics in support are wanting.

Mortality (p. 351).

Further cases of mortality during the frost of early 1929 are mentioned, as in Cumberland, at Croome Park (Worcestershire) and in the Harrow district (Middlesex–Herts.). It is clear, however, that the blow was by no means universal, and the growth of several colonies was apparently not affected. Attention must be drawn to the notably complete series of totals for Wanstead (Essex), where diminution after the great frosts of the early 'eighties and 'nineties and of 1916–7 is very marked. At Lakenheath (Suffolk) the growth of a new colony is said to have suffered a set-back through three pairs dying of eating fish manure.

Non-Breeding Stock (p. 352).

Cases are reported of odd birds or small parties which haunt places, where they do not appear to breed, during most of the year. Non-breeding birds are reported as especially noticeable in south Hampshire (Lymington–Southampton coast district, including Beaulieu River) by Mr. T. H. Harrisson, while Mr. R. H. Brown notes two or three immature birds at Uldale during the early spring of 1928 and 1929. At Hunsdon (Hertfordshire) there are said to be definitely none.

Date of Breeding (p. 353).

In Cumberland at Floriston, Uldale and Crofton during 1925–28 one or two broods were able to fly each year by the end of the first week of May (in 1928 actually by the end of April in one case). 1929 proved a much later season, owing to severe weather, and most young were only hatching during the first fortnight of May. Uldale birds usually begin building in the last week of February. At Crofton there were Herons about the nest-trees on February 10th, 1929, and a pair roosted there on December 22nd; several visits during January–February, 1930, gave negative results, although single birds were present on February 2nd and 16th, and 7–8 by March 3rd. At Culford (Suffolk) birds are present all through the year, but the number increases in February. At Croome Park (Worcestershire) the beginning of operations is very irregular, some starting work on the nests in January.

DISTRIBUTION AND MOVEMENTS.

Sites of Heronries (p. 353).

Among the more rarely occupied trees, birch is recorded for the extinct site near Brandon (Suffolk) which preceded Lakenheath, and was also in use at L. Shin (Sutherland) in 1875. Odd nests in cedar are reported extant at Hunsdon (Herts.) and Howbury Park (Beds.). The nests in poplar and thorn mentioned in the *Report* as at Leadenham (Lincs.) were actually at Fulbeck. At

ulford (Suffolk) the birds used to nest in firs in Dixon's Covert, ut about 1922 they transferred to oaks, of which there are at east as many. These oaks are stag-headed, and some in such bad ondition that they are dying off and will soon need felling. The ests here are either against the trunk or in the outer branches, ndiscriminately.

The statement (Harting, 1911) that Herons were "formerly umerous," breeding amongst reeds at Tollesbury in Essex, leserves verification, both as a possible ancestor of the St. Osyth olony and as an apparently isolated instance for this country f any important heronry using a reed-bed as a site. The single nest reported near Mawgan Porth (Cornwall) in 1929 is the only ase of an extant cliff site so far brought to light in England.

PEDIGREES OF HERONRIES (p. 356).

The last sentence *re* Wootton (I.O.W.) under this section on . 357 of the *Report* should be deleted, since we are informed by he owner, Mr. S. R. Clarke, that the birds came of their own free vill.

ALTITUDE OF HERONRIES (p. 357).

Uldale (Cumberland) is at 700 ft.

EXTENT OF FORAGING RANGE (p. 359).

At Unthank during the spring of 1920 Mr. R. H. Brown observed 1–2 Herons coming almost daily to fish from Edenhall (Cumberland), listant 10–12 miles.

FLIGHT.

Some data submitted by Mr. T. H. Harrisson, taken with double check by means of a stop-watch reading tenths of a second accurately, seem worth summarising. In twelve timed cases the beats per minute in flight worked out at 160, 187, 165, 158, 167, 156, 140, 158, 162, 175, 172, 146 respectively, the wind in every instance being negligible. The extreme range is therefore 140–187, but those instances where the flight gave the impression of being perfectly normal, without hurry or undue deliberation, fall into the much smaller range of 158–169. A bird searching for a spot to alight was recorded by the speedometer of a car keeping level to be doing 24–25 m.p.h. land speed.

LIST OF REFERENCES: ADDITIONS.

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A PLAN FOR SIMULTANEOUS INTERNATIONAL OBSERVATION OF MIGRATION ROUND THE NORTH SEA.

In *Der Vogelzug* (January, 1930), a new periodical dealing with migration observations and ringing records at Heligoland and Rossitten, Dr. R. Drost, the director of the Heligoland Station, publishes an appeal for co-operative observation of migration on all the coasts of the North Sea.

The general idea of the scheme is to appoint special days (perhaps Sundays) between September 15th and October 15th, 1930, upon which certain observations (fixed by a standard schedule to ensure uniformity) shall be made at as many favourable points round the North Sea as possible.

The observations would consist of a census of all transient and resting species and individual birds on one day at fixed hours; determination of the exact direction (with compass) in, if possible, every case in which one or several birds of like or different species arrive, pass through or depart, with simultaneous recording of time of day in each case; determination of the height of flight; data concerning meteorological conditions (especially direction and strength of wind and visibility). Further data about changes of direction and steering towards islands or points of land.

When possible, observations should also be made if and how nocturnal migration occurs. This is especially important since night-travelling birds often behave differently from day-travelling ones.

It is pointed out that while there are many observations already recorded, what is still wanting and is necessary is the *simultaneous* observation of bird-migration at as many places as possible in the way above suggested.

Of particular importance is observation at geographically favourable positions such as, in this country, the Shetlands and Orkneys, Isle of May, Holy Island, Farnes, Spurn Point, Scolt Head Island, Blakeney Point, Cromer, Yarmouth, Lowestoft, Orfordness and North Foreland, and if possible Light-stations and especially Light-ships.

The scheme certainly deserves all encouragement, and any of our readers who could undertake to make the necessary observations at any point on the shores of the North Sea between the dates mentioned, should communicate at once with Dr. R. Drost, Vogelwarte, Heligoland.

NOTES

ROOK BUILDING ON CHIMNEY-POT.

A Rook (*Corvus f. frugilegus*) is at the present time (April 1930) sitting on her nest, which is built *on* the top of an open, round, disused, chimney-pot on a house at Cheadle, Staffordshire. The cock bird is standing by on the top of an adjoining chimney-pot. I find two similar cases recorded in Volume X. of British Birds, one of fifteen nests which were built *inside* chimneys in Bedfordshire (p. 137), and another where three Rooks built nests *on* the top of chimneys in Brighton (p. 100), but it is not stated if the nests were on the top of chimney-pots or on the chimneys themselves. John R. B. Masefield.

RED-BREASTED FLYCATCHERS IN LINCOLNSHIRE.

On September 18th, 1929, I obtained an example of the Red-breasted Flycatcher (*Muscicapa p. parva*) in a hedge close to the sea-coast at North Cotes. It was fine, dry weather with a light N.E. wind and there was no migration in progress, the only other migratory bird seen being a single Redstart. This bird proved to be a female. On the following day I obtained a second example—a male—in the same place. On this day there was a fresh west wind and no sign of migration.

Compared with the Pied Flycatcher this bird is, in my experience, very secretive, keeping to the inside of the bush or hedge which it frequents instead of perching on the most exposed branches, as does its commoner relative.

G. H. Caton Haigh.

WHITE-SPOTTED BLUETHROAT IN NORFOLK.

On April 7th, 1930, Mr. F. Woodhouse, of Salthouse on the north Norfolk coast, described to me a bird which he, and others, had seen on several occasions during the preceding few days in two or three cottage gardens of the village. As the bird described could only be a Bluethroat, a search was made and the bird flushed from one of the gardens in which it had previously been seen. It perched on a low wall and was easily identified as a male *Luscinia svecica cyanecula*, as it gave us an excellent view of its blue throat with red band below and a white spot in the centre of the blue.

On April 8th the bird was still there, when it was watched for an hour or more by the writer and several of the local residents, when its salient points were visible again and its identity made doubly sure.

The bird on this occasion made its base in a patch of broccoli, from which it emerged several times and ran (it did not hop) with lowered head and tail cocked up, in little rushes, across an open piece of ground to a small manure heap on which it could be seen catching insects after the manner of a Wagtail. On one occasion the writer watched it warbling, when the white spot could be seen "twinkling" as the throat throbbed and the throat-feathers rose and fell. No sound could be heard, however, at about twenty-five to thirty yards' distance. When the throat-feathers were fluffed out, the shape of the white spot became triangular, with the apex nearest the chin. No black was visible between the blue throat and the red band below it, as is shown in illustrations of this species.

This is, I believe, the first time the White-spotted Bluethroat has been recorded in Norfolk. R. M. GARNETT.

MARSH-HARRIER IN STAFFORDSHIRE.

MR. JAMES TAYLOR informs me that a Marsh-Harrier (*Circus æruginosus*) was unfortunately shot at Short Heath, near Willenhall, in October, 1929; he adds: "It is a very fine male." I am not aware of any former record of this bird being found in Staffordshire. JOHN R. B. MASEFIELD.

[Although this appears to be the first time a specimen of the Marsh-Harrier has actually been obtained in Staffordshire, there is at least one sight record of an immature male, with the characteristic light head, which should be unmistakable.—F.C.R.J.]

ALBINO PINK-FOOTED GEESE IN LINCOLNSHIRE.

ALBINO Geese, are, I think, sufficiently rare to make their appearance worth placing on record. On January 1st, 1930, while watching a large flock of Pink-footed Geese (*Anser brachyrhynchus*) in the Ancholme Cars, I noticed one which appeared to be entirely white. I have known of this bird for some four or five years. I have once previously seen it at a considerable distance and it has been reported to me from widely different districts, from the Humber to the highest point of the Wolds.

On February 12th, also in the Ancholme Cars, I saw and watched for some time another Goose which had the head,

neck, the upper part of the back and the under-parts white, while the lower part of the back and the wings were of the ordinary colour. G. H. CATON HAIGH.

GLOSSY IBIS IN STAFFORDSHIRE.

MAJOR C. HATTON reports to me that a Glossy Ibis (*Plegadis f. falcinellus*) was shot on the Wolverhampton Sewage Farm on November 8th, 1929. The bird was handed while still alive to Mr. H. L. Adams, who informs me that there can be no doubt as to its identity. He found the bird to be so slightly injured that he turned it out on some bog-land near his house, and for six days he observed it feeding on the mud. On the sixth day it could fly and had disappeared on the next day. Mr. Adams states that "on one occasion the bird being frightened took to deep water, but was evidently not at home as a swimmer and quickly came ashore and walked away."

JOHN R. B. MASEFIELD.

UNRECORDED FULMAR PETREL FROM LANCASHIRE.

AN unrecorded specimen of the Fulmar Petrel (*Fulmarus g. glacialis*) was picked up alive after a N.W. gale during the winter of 1899, in Churchtown Wood, near Garstang, by a Miss Wilson, and the bird was set up and is now in the possession of Mr. F. O. Wilson of Bonds, near Garstang.

Mr. F. W. Smalley found one washed up at Heysham, near Lancaster, during the winter of 1898, but as it had been dead some time it had possibly been washed there from afar, and can hardly be recorded for the county of Lancashire.

There are five other Lancashire records.

H. W. ROBINSON.

RED-THROATED DIVER IN ESSEX.

THERE was a Red-throated Diver (*Colymbus stellatus*) on the Perch Pond, a comparatively narrow piece of water in Wanstead Park, from February 12th until March 7th, 1930.

H. A. LITTLEJOHN.

NIGHTINGALE IN SHETLAND.—Mr. G. T. Kay records (*Scot. Nat.*, 1929, p. 168) that an adult female Nightingale (*Luscinia megarhyncha*) was found in his garden at Lerwick on September 5th, 1929. The bird was sent to the Royal Scottish Museum. There is only one previous record for Scotland, viz., Isle of May, May 9th, 1911.

BLACK REDSTART IN SCOTLAND.—Mr. T. G. Laidlaw records (*Scot. Nat.*, 1929, p. 176) that he watched a Black Redstart (*Phœnicurus o. gibraltariensis*) for a considerable time at a short distance on November 25th, 1929, at Halmyre, Peeblesshire. The species is rarely observed on the mainland of Scotland, though it has often been noted on islands.

CAPERCAILLIE IN SUTHERLAND.—Dr. J. Ritchie records (*Scot. Nat.*, 1929, p. 176) that a hen *Tetrao urogallus* was seen in 1927 near Skibo, north of the Dornoch Firth. The bird had spread to Ross-shire some years ago.

LETTERS.

EXTRAORDINARY DISPLAY BY A PAIR OF HEDGE-SPARROWS.

To the Editors of BRITISH BIRDS.

SIRS,—I witnessed here to-day (March 27th, 1930) another example of the strange nuptial habits of the Hedge-Sparrow, first recorded in your pages by my friend, M. Delamain (*antea*, p. 19; see also pp. 103, 199, 231 and 255). On this occasion I counted forty distinct pecks by the male, followed by an offer of coition, which would doubtless have been effected but for the intervention of a House-Sparrow, which drove the male from the bank where he had alighted after his attempt.

The female remained throughout immobile, with head lowered and tail raised.

I was unable to stop, and she only moved from the path where the incident occurred when I was within a yard or two of her.

DORKING, SURREY. H. H. GORDON CLARK.

To the Editors of BRITISH BIRDS.

SIRS,—With further reference to the letters on the above subject, I am venturing to send you notes on the display of a pair of Hedge-Sparrows which I witnessed to-day at a range of about eight feet.

As before described, the hen raised her tail and the cock darted in and pecked at the base of the hen's tail. The cock did this three times, and between each contact the hen gave three or four quick jerks of her whole body. At the end of this display coition took place, as described by Mr. Meiklejohn, "in a flash." The only thing which your correspondents do not appear to have mentioned was that during this display the hen kept her tail quivering so that it appeared like an arc of mist above her back. The whole display took place in absolute silence. H. TRAHAIR HARTLEY.

SUTTON, SURREY, *April 13th*, 1930.

SIGHT RECORDS.

To the Editors of BRITISH BIRDS.

SIRS,—For some time now it has occurred to me that the admission of doubtful sight records is not going to serve the science of ornithology very soundly.

On looking through the last four volumes of *British Birds*, including the current volume as yet incomplete, there would appear to be several such references; they must be regarded as doubtful, or they would not be styled "probable."

I submit that the "probable" occurrence of this or that species in a county cannot have any scientific value, and will only tend to irritate any future worker engaged upon a search of the literature in a compilation of a county fauna. Would it not be possible for those responsible, with the evidence before them, either to accept fully, or reject finally, such sight records when submitted for publication? Their half-hearted acceptance in my humble opinion detracts from the undisputed value of your publication. JAMES M. HARRISON.

SEVENOAKS, *March 24th*, 1930.

[Dr. Harrison raises a very difficult point, and we are glad to have this opportunity of making a statement on this subject as we receive an increasingly large number of notes in which the identification of a scarce or rare bird depends upon field observation.

The most experienced and careful observers do not usually report such observations unless they have been able to note for certain those characteristics which afford good evidence for correct identification. Such observers also, be it noted, invariably give the essential evidence to prove their correctness. This is a point of great importance so that any reader or recorder of the future can judge the observation at its face value. This type of record, especially when it is made by one who has had experience of the bird elsewhere, is by far the most satisfactory and can be accepted at once.

Unfortunately, inexperienced observers, who have perhaps never seen the bird before, are usually much less careful. The worst type is the dogmatic observer, who asserts that he is certain of his correctness without giving any evidence at all. Such records being quite unscientific are generally useless. But even when evidence is given, this is often insufficient upon which to form a judgment. Indeed, it may be said that, except for those few in the first class, sight observations of rare birds, of which we receive many, almost invariably involve considerable correspondence before a judgment can be made.

We are sorry to say that many more have to be rejected than can be accepted, while a few, though not conclusively proved, are so probably correct as to be worth publishing. It is these latter which Dr. Harrison takes us to task for accepting "half-heartedly." It is often difficult to decide whether such observations shall be published or not, but if the evidence in our opinion is good, but not quite conclusive, the word probable is prefixed to indicate this, and the essential evidence available is published so that county or other historians of the future can form their own opinions. Moreover, such records are sometimes confirmed by subsequent observation. Another point which must not be lost sight of, is that such observations rejected by us and published elsewhere without an opinion, and lacking the essential evidence, are much more difficult for the future historian to deal with.

We would take this opportunity of asking observers to note the following essential points.

Do not record a bird as seen unless you have *taken down on the spot* its characteristics *before* consulting a work on ornithology. One of the most unsatisfactory methods of identification is to view a bird in the field, taking insufficient notes, or no detailed notes, and then finding its supposed portrait or description in a book at *home*, to proceed to work out an account of what was seen.

Field notes should state :—

1. Distance of bird from you and whether you were using glasses or not, and nature and direction of light.
2. Nature of ground it was on, what other birds (if any) it was associating with.
3. Whether you saw it from different angles, whether at rest or in flight.
4. What were its actions and what was the character of its flight, compared with other birds.
5. Its size and general form as compared with other birds, stating what birds at all like it are known to you, and how it differed from them.
6. Particular points in structure as compared with other birds, such as size and shape of bill, length of legs and feet, shape of wing, length of tail.
7. Colour of bill, legs, and feet. Any distinctive white or colour patches or markings and their *exact* position. General colour above and below.

If possible, a rough sketch or diagram of the bird should be made, showing colour-pattern, distinctive marks and shape.—EDS.]

INDEX.

NOTE.—The nomenclature followed in this volume is in accordance with the "Systematic List" printed at the end of the Volume II. of *A Practical Handbook of British Birds* and reprinted in *A Check-List of British Birds*, and the additions and alterations appearing on pages 101–2 of Volume XXII. of *British Birds*.

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